CHAPTER 4 – WORK PACKAGE PROCESS

4.1 PURPOSE

This chapter provides the requirements for the development and performance of Type 1 and Type 2 WPs.

4.2 SCOPE

Type 1 WPs are used for activities which do not require engineering design packages in accordance with DES-210. These activities are typically repairs, simple environmental remediation, etc. Engineering calculations and input may be used and documented in a Type 1 WP.

Activities requiring engineering design are performed with a Type 2 WP. The purpose behind a Type 2 WP is to integrate the requirements of an engineering design package into a WP. For the development of a Type 2 WP, the intent is for the engineers and planners to coordinate and work together. For a Type 2 WP the planning team **Should** be established prior to starting the design phase. In order for this approach to be effective, a significant amount of coordination between the Engineer, Planner, Foreman/Crafts, and Safety SMEs will be required during the design phase. The basic elements of ISM will be applied throughout the process to ensure the WP is a quality document which can be worked on the floor.

This chapter provides the necessary information to develop and perform Type 1 and Type 2 WPs. Skill-of-the-craft methodology **Should** be used, whenever appropriate, to help streamline the WPs into a more user-friendly document thereby allowing the crafts to focus their efforts where they are needed to ensure safe and efficient performance of work.

4.3 INSTRUCTIONS

This section applies to both Type 1 and Type 2 WPs. Although most of the instructions are the same for a Type 1 and a Type 2 WP, the special requirements and considerations for Type 2 WPs are found in Section 4.4.

4.3.1 Work Packages

The Planner, Responsible Organization, engineers, floor level workers, user, and assigned SMEs perform a walkdown of the requested activity. This **Should** be completed concurrently with the completion of the JHIT and development of the JHA and IHA (as required). The walkdown **Should** include inspection of the structures, systems, components and work environment related to the proposed work activity. The level of participation should be graded to the complexity, hazards level, and uncertainty of the task.

The walkdown **Should** be performed by personnel familiar with the area and equipment, SMEs, craftsmen, equipment operators and any other supporting organizations.

The Planning Team **SHALL** refer to appropriate drawings and other technical data before and during the walkdown and review available lessons learned from previous WCDs and from the LL/GI homepage on the Site intranet.

4.3.2 WP Development

Each page of the WP **SHALL** include a page number, the work control number, and the current revision.

The sections and appendices identified in Table 4-1 **SHALL** be the format used for all WPs and listed in Section 2. Sections not required **SHALL** be marked N/A in Section 2. Approval of the WP signifies acceptance that these identified sections are not required to perform the work.

The WP **Should** be developed so that the work instructions required at the job site may be removed from the WP during performance of the work as described in Section 4.3.4. Therefore, the WP at the work site may range from the minimum sections and appendices required; to all sections and appendices developed as determined by the planning team.

4.3.2.1 Section 1 - WP Cover Sheet

The Planner **SHALL** develop a WP Cover Sheet per the example in Appendix 4.1. The actual cover sheet may be modified to add organizations to review and approve the package based upon the results of the planning process. Check the appropriate box for a Type 1 or Type 2 WP. The WP title **Should** normally be the same as the Corrective Action Title in Section 3 on the WCF.

Concurrence and approval signatures are obtained in accordance with Section 4.3.3, and closure signatures are obtained in accordance with Section 4.3.8.

4.3.2.2 Section 2 - Table of Contents/List of Effective Pages

The Planner **SHALL** develop a Table of Contents as follows:

- List the required sections and appendix headings exactly as they appear in the WP.
- If the WP does not require a particular section, then list the title of the section and enter **N/A** instead of a page number for that heading.

Table 4-1

REQUIRED WORK PACKAGE SECTIONS/APPENDICES

Section #	Document	Requirement
Section 1	Work Package Cover Sheet	Mandatory
Section 2	Table of Contents/List of Effective Pages (TOC/LOEP)	Mandatory
Section 3	Work Control Form	Mandatory
Section 4	Engineering Drawings/Specifications	If Required
Section 5	List of Required Drawings and References	If Required
Section 6	Material Requirements	If Required
Section 7	List of Special Tool Requirements/PPE/Training	Mandatory
Section 8	Initial Conditions/Prerequisites	Mandatory
Section 9	Specific Task Instructions	Mandatory
Section 10	Post Maintenance Testing Instructions	If Required
Appendix 1	ASF/JHIT Checklist/JHA	Mandatory
Appendix 2	WP Status Log	Mandatory
Appendix 3	Misc. & Field Generated Paperwork Record	Mandatory
Other Appendices **may** be added as necessary		

Table 4-2
OTHER WORK PACKAGE DOCUMENTS

The following documents or copies SHALL be placed in a Type 2 WP: Engineering drawings, specifications and Bill of Materials as required by the EDP
The following documents or copies SHALL be placed in the WP as required: • Confined Space Permit • Energized Electrical Work Permit • Field Generated Data Sheets Record • Hoisting & Rigging Checklist • Powered/Non-Powered Vertical Lift Checklist • Hot Work Permit • Excavation and Trenching Checklist • Hazardous Material Preparation Checklist • Non-Routine Waste Log • Waste Generating Instructions
If developed or used, the following documents or copies may be placed in the WP or in an appropriate file location: • ALARA Job or Design Review • Beryllium Exposure Plan • Environmental Checklist • Guidance Memos • Lead Compliance Plan • List of Required Crafts and Support Personnel • Material Order/Specifications • Miscellaneous Engineering Documents • Pre-evolution briefing • Re-start prerequisites • Site SAR Screening Form • Surveys • Work Package Comments • Analytical Data • Chemical Order Form • Glovebox Handling & Movement Checklist • Land Disposal Requirements Process Review Worksheet • Lifting Plan • LO/TO Permit • Miscellaneous Documents • Post Job Review Checklist • Respiratory Protection Verification • Safety Evaluation Screen/USQD/JCO • Soil Disturbance Permit • Training Rosters & Requirements • WP DMRs

4.3.2.3 Section 3 - Work Control Form

The WCF **SHALL** have been entered into the Site WCF database and have a valid work control number. The Planner **SHALL** place a copy of the WCF in the WP.

4.3.2.4 Section 4 - Engineering Drawings/Specifications

The Planner inserts the required engineering drawing and specifications as designated in the engineering design package, if applicable.

4.3.2.5 Section 5 - List of Required Drawings and References

The Planner **SHALL:**

- Prepare a List of Required Drawings and References
- Identify each item by:
  - Reference or drawing number
  - Description
  - Issue date for the revision, Document Change Form

The References Section consists of two subsections, Performance References and Developmental References. The Planner **SHALL** develop Performance References by listing those Standards, Procedures, Instructions, Drawings, etc., which the workers must actually open and use. Performance references, if used, are called out by the individual action steps and **Should** normally be referenced in the WP and not physically included as an Appendix. The use of performance references **SHALL** be minimized by including only those references which the

workers must actually open and use. Developmental references are used in the planning process but are not generally included in the WP. Typical developmental references include vendor manuals, plant drawings, and Site Technical Standards. For Type 2 WPs the Baseline Document Change Form should be reviewed during the development of Section 5.

All reference documents cited in the document are listed in this section. List the date of the latest change or revision on the right side of the page.

4.3.2.6 Section 6 – Material Requirements

NOTE: *Bill of Materials/Master Agreement Order Receiving Form/Purchase Requisitions may not be required until after troubleshooting since material will be identified during the troubleshooting process. Therefore, it is permissible to prepare and approve a Type 1 WP without a completed Material Requirements section.*

NOTE: *APR-111 requires the Material Acquisition Member to ensure required commodities are obtained from excess material, if available, prior to ordering new material.*

The Planner and Engineer (for Type 2 WPs) **SHALL** ensure that the material required to perform the work activity is documented in this section of the WP.

Material procurement **SHALL** be conducted in accordance with APR-111. The material requirements associated with a WP may be listed on a Purchase Requisition, a Bill of Material or a Master Agreement Order Receiving Form. Purchase Requisition requirements are contained in APR-111. Bill of Material requirements are contained in DES-210. Master Agreement Order Receiving Form requirements are contained in 1-PRO-453, Master Agreement Subcontract Procurement.

Procurement Specifications written in Construction Specification Institute format by a qualified specification writer in accordance with DES-210 may also be included in this section of the WP. Construction Specifications Institute format procurement specifications are required for PL-1 and PL-2 items and **SHALL** be included or referenced in this section when required.

Review of Uncertified Items

Items that would be procured as PL-1 or PL-2 but are available on Site from warehouse stock, excess material or other on Site sources **may** be used if the engineer/requisitioner determines that the item is equivalent to the original item. The engineer/requisitioner **SHALL** perform an evaluation that addresses issues such as:

- Is the item the same model and part number and from the same manufacturer?
- Is the item damaged or degraded?
- Is the item suspect or counterfeit?
- Is the item Y2K compliant as required?
  - For information technology systems: System software, hardware and firmware processes date/time data (which may include but is not limited to displaying, recording, sorting, calculating, comparing, sequencing, and representing dates), including leap year dates, before, on, and after January 1, 2000, with no failure, error, interruption, or reduction of functionality.
  - For equipment/parts/items using embedded chip technology: The system or asset will function properly, regardless of the calendar or Julian date which the system or asset may display or process in any manner.

The Responsible Engineering Manager/RM and the QA representative must also concur with the decision. Documentation of the decision and signature of the responsible individuals involved with the decision **SHALL** be recorded in the Work Package Status Log. The APR-111 procedure contains the requirements for PL-1 and PL-2 items.

Review of Non-Identical Replacement Parts for Technical Adequacy

Items that are not identical replacement parts for Safety Class and Safety Significant items, but are technically adequate, **may** be purchased/used if the engineer determines that the item is technically and functionally equivalent to the original item. The engineer **SHALL** perform an evaluation that addresses issues such as:

- Is the item equivalent in:
  - Physical, mechanical, electrical interfaces
  - Materials of construction
  - Technically and functionally equivalent
  - Pose the same or less risk to human health and/or the environment
  - Failure mode and rate
  - Natural phenomena hazards
  - Supporting documentation (Certificate of Material Test Report, Certificate of Compliance, etc.)

The Responsible Engineering Manager/RM must also concur with the decision. Documentation of the decision and the names of responsible individuals involved with the decision **SHALL** be recorded in an approved engineering calculation.

4.3.2.7 Section 7 - List of Special Tool Requirements/Personal Protective Equipment/Training

The Planner **SHALL** develop a list of the following:

- List of Special Tool Requirements and Materials, as required
- The PPE, or specified safety equipment which **SHALL** be obtained from the JHA
- Training requirements specific to the job being performed, as required. The training requirements are obtained from the JHA/JHIT and Guide

4.3.2.8 Section 8 - Initial Conditions and Prerequisites

The Planner develops the WP Purpose and Scope and then the Precautions and Limitations that apply to the WP. For Type 2 WPs the planner **Should** work with the engineer to incorporate applicable prerequisites from the EDP.

Precautions alert document performers to required actions and conditions that represent potential hazards to personnel or possible damage to equipment, or that establish abnormal conditions. Limitations define boundaries that are not to be exceeded. Both precautions and limitations **may** represent hazard controls developed during the JHA process.

The RM **SHALL** determine if the consequences of delaying or canceling work after beginning would have any detrimental safety effects. If detrimental safety effects are possible, the work package **SHALL** contain a contingency statement to perform a review of the effects of the delay or cancellation and modify the WP as necessary to place the work in and keep it in a safe condition. Refer to DES-210 for further guidance for Type 2 WPs.

If work associated with establishing prerequisites is performed in Section 8, then a signature for operations to authorize the work performance **SHALL** be included.

The Planner then develops the Initial Conditions/Prerequisites that apply to the WP based on the JHA. The following **should** be considered in preparing Initial Condition/Prerequisite statements:

- The safety of personnel, the general public, and the environment
- The protection of equipment and material
- Inadvertent, incorrect or omitted actions that could cause system operation, shutdown or could impact TSRs/OSRs
- Limitations identified in approved vendor information and design documents
- Unusual alarms that could occur or are expected to occur as a result of the work
- Actions that could result in automatic shutdown or activation of an engineered safety feature
- The reduction of personnel or environmental exposure to radiation, contamination, electrical shocks, dangerous chemicals, fire hazards, confined spaces, and moving/rotating equipment

Preliminary Actions and Site Preparations are developed that apply to the WP, using the following as a guide:

- Specific training or qualification requirements specific to the WP
- Performance of a pre-evolution brief or Job Task Briefing as required by the COOP Manual
- Review of the applicable Material Safety Data Sheet
- Inventory of required material and material verification
- Any preparatory field activities that are required to be completed before proceeding with the Specific Task Instructions
- Confirming the correct system lineup

If the work will affect the design, function or method of performing the function of a system, structure, or component or impact on TSR/OSR described in the AB, then the Engineer and RM **SHALL** determine the specific remedial actions and reference the applicable AB Document or DOE approved remedial actions. If the required actions are not specified in the AB Document and have not been approved, they must be documented and reviewed by Nuclear Safety and Operations Review Committee, Independent Review Committee, per the *Nuclear Safety Manual* and *Operations Review Requirements*. The Engineering documentation may contain the proposed changes in design performance criteria, function, method of performing the function of a system, structure or component, impact on TSRs/OSRs, systems interactions and potential impact on failure modes. This information will be used by Nuclear Safety to support development of a USQD. The Engineer and the Planner then incorporate the approved remedial actions into the WP.

The WP **SHALL** contain a step for the Job Supervisor to review the training requirements for those hazards identified in the JHA that indicate the "Training Required". Table 1 of the Training Users Manual can be referenced for most of the training requirements.

4.3.2.9 Section 9 - Specific Task Instructions

A signature block for operations to authorize the work performance **SHALL** be included. The Planner develops task instructions that provide:

- Clearly understood text
- Appropriate level of detail
- Concise instruction steps in a logical sequence, using skill-of-the-craft methodology when appropriate
- One action per step

- Coordination of multiple actions
- Where appropriate, **WARNING, CAUTION,** or **NOTE**
- Safety controls identified in the JHA where appropriate in the work steps

Specific task instructions are tailored and graded with input from the following as appropriate:

- Maintenance
- Engineering (For Type 2 WPs the engineer and planner work together to develop specific task instructions.)
- Safety SMEs
- Quality
- Metrology Laboratory
- Other organizations required by the WP

Check-off space **Should** be used instead of signatures for all work steps that do not require witness, inspection, verification points, or data collection. If a signature is required on another type of inspection report, a check-off space **Should** be used to show completion of that step. That step should identify where the signature can be found. Duplicate signatures should be avoided. Examples of when signatures are required include:

- Specific interim and final witness, inspection, or verification points, as identified by Engineering, Safety Discipline, or Quality
- Steps needing inspection, or verification, such as witness points and verification of activities, or data collection
- Identification of steps that could initiate an equipment shutdown or transient or the initiation or interruption of any process action
- Identification of steps that inform the operations personnel of expected alarms or equipment operations
- Specific radiological control hold points, as identified by Radiological Safety
- Authorization of activities that are cited or credited in AB documents
- Control of Radioactive Sources

Each step that implements an administrative control from a Criticality Evaluation **SHALL** be identified with the circle CS symbol (CS) to the left of the step number.

If the required actions are not specified in the AB Document and have not been approved, they must be documented and reviewed by Nuclear Safety.

For passive design features (i.e., tertiary confinement) where a post maintenance test (PMT) is not feasible, adequate inspections **Should** be conducted and documented in the section referenced during/after construction to verify key design performance criteria are met.

4.3.2.10 Section 10 – Post Maintenance Test Requirements

If post maintenance test (PMT) work activities are required then a signature block for operations to authorize the work performance **SHALL** be included. Engineering, the RM, Maintenance and the Planner together develop post maintenance test requirements, which provide the following:

- Purpose describing the intent of the PMT
- Precautions and limitations specific to the PMT

- Prerequisites specific to the PMT
- Task instructions specific to the PMT
- PMT acceptance criteria and verification

For passive design features (i.e., tertiary confinement) where a PMT is not feasible, adequate inspections **Should** be conducted and documented in the section referenced during/after construction to verify key design performance criteria are met.

The Planner **SHALL** develop steps to compare the work accomplished with the PMT or inspection performed to determine that all work is acceptable prior to returning the equipment or system to normal service per COOP, if required.

4.3.2.11 Work Package Appendices

The Planner develops the following Appendices, as required by the requested activity:

- Appendix 1 – ASF, JHA, and JHIT (includes ALARA reviews and other safety related documents). **Required for all WPs.**
- Appendix 2 - WP Status Log (The WP status log provides an area of the WP for the foreman/supervisor to record work status and may be used by the foreman/supervisor to record any relevant information regarding the work.) **Required for all WPs.**
- Appendix 3 - Miscellaneous/Field Generated Paperwork Record Sheet (for example, Facilities Inspection Report, Material Certification Tags, SES, USQD, applicable MSDS, required permits and checklists) **Required for all WPs.**
- Review Comment Sheet(s)
- PJR Checklist
- Pre-Evolution Briefing Record in accordance with COOP
- Applicable Lessons Learned to discuss at the pre-evolution briefing
- Work Package Revision Request, as needed
- Non-routine Waste Origination Log prepared in accordance with Instructions
- WP Re-Start Prerequisites **may** be inserted when needed
  - Re-start prerequisites consist of those steps from Section 8 of the WP that are to be performed prior to authorizing work to be restarted after an unforeseen work stoppage
  - SM, RM, or the Job Supervisor update the WP Status Log to include comments about the progress of work, shift turnover, work stoppage, emergency actions, WP recovery steps, and actions which are required to place the work site in a safe condition
- Other pertinent information, drawings, sketches, or procedures
- High planning level tables and forms, per Chapter 3
- Any permits/checklists required to perform the work as required

4.3.3 Concurrence and Approval

The Planner and RM **SHALL**:

- Sign and date the WP cover sheet
- Obtain comments and concerns from representatives of the required organizations
- Ensure that the changes are reviewed and concurred with by the affected organizations if a change, other than administrative or editorial, is made to the WP after any concurrence signatures are obtained

- Obtain signatures from representatives of the organizations identified in ASF Screen 2, and those designated as "Required" in the JHIT performed in Chapter 3; these signatures **SHALL** be documented on the Cover Sheet

For Type 2 WPs, concurrence and approval for the design portion (EDP), **SHALL** be performed in accordance with the requirements outlined in DES-210 and **SHALL** be completed prior to the approval of the Type 2 WP.

Concurrence/Approval Signatures indicate satisfaction by the signing organization that the WP contains sufficient analysis, documentation, and safety controls to satisfy the criteria of the graded approach concept with respect to the scope of the work and that the safety controls have been properly implemented. They also indicate approval of any deviations from normal practices or procedures identified in the WP and that Sections that have been marked N/A are appropriate.

If a SES or USQD is required, then the RM **SHALL** submit the WP (and EDP for Type 2 WP) for screening and place the SES in an appendix of the WP before issuing for work.

Screen the WP to determine if a PRC/ORC review is required in accordance with *Operations Review Requirements*.

The RM **SHALL** sign and date the cover sheet when all requirements for the approval are met.

4.3.4 Conduct of Work

The organization(s) performing the WP **SHALL** comply with the requirements of the COOP manual for conduct of work and procedural compliance. The hazards and controls identified in the JHA and applicable LL/GI **SHALL** be reviewed as part of the pre-evolutionary brief.

Prior to commencing work, the RM **SHALL** screen the activity using the ASF in accordance with Chapter 2, each time the WP is used. (It is anticipated that all 3 questions in Screen 1 of the ASF will be answered Yes, thereby requiring no further documentation.)

The RM **may** remove any documents deemed necessary to be used at the work site and return them to the work package after the completion of the work. The work instructions **SHALL** be kept at the work site, unless there is a documented reason not to, such as contamination, confined space, environmental factors, etc. If the work instructions are not at the work site, and there are steps requiring; a) sign-off/validation, b) they must be performed in order, or c) they must be performed exactly as written, then the workers must be in communication with someone who can read the work instructions to them. Working copies of the work instructions **may** also be used and any information, such as data or signatures can be either transferred into the work package or the original pages **may** be replaced with the working copy.

Upon completion of the WP, the Job Supervisor **SHALL** perform a PJR in accordance with the requirements stated in Chapter 10.

4.3.5 Periodic Review Requirements for Approved WPs

It is not necessary to perform a periodic review every 90 days if the WP is not scheduled to be worked. The periodic review should only be performed prior to releasing the WP to the responsible organization for work performance.

If the work activity has not commenced within 90 calendar days of the RM approval on the WP Cover Sheet, or if the work activity has been delayed for a period of 90 calendar days or longer, then resubmit the WP to Planning for review.

The Planner SHALL:

- Review the WP for any changes that impact the work conditions, processes, type of equipment, hazards, and hazard controls as described in Sections 8, 9, or 10 of the WP
- Review Section 5 of the WP for any changes to the references listed or new requirements which could impact the requested work in Sections 8, 9 or 10 of the WP (i.e., OS&IH, RadCon Manual, etc.)
- Upon completion of the review, enter name, signature and date in the WP status log indicating that a 90 day review was completed
- If the review determines that changes do impact the requested work, then process changes per Section 4.3.6

4.3.6 Revisions and Changes

4.3.6.1 Revision and Change Determination

For those changes where the scope, design intent (including all Type 2 Engineering Change Requests), or hazard controls have changed, a new ASF **SHALL** be performed in accordance with Chapter 2, and a new JHIT and JHA **SHALL** be performed in accordance with Chapter 3.

The Initiator **SHALL** process a WP Revision Request in accordance Appendix 4.2, if the requested change affects any of the following:

- The scope or intent of the job
- Hardware important to criticality safety, the intent of the SES/USQD, or an AB Document or OSR/TSR
- A hazard control measure identified on the JHA or in the WP (e.g., ALARA review, RWP)
- System/component model number, material specification (that does not meet original fit, form or function as determined by Engineering), material certification or test data, or system component configuration
- Hold points, inspections, verifications and witness signoffs

Otherwise, the change is processed per Section 4.3.6.3.

4.3.6.2 Instructions for Completing WP Revision Request

Changes to information derived from the EDP (i.e., drawings, specifications, instructions, etc.), **SHALL** be changed in the EDP in accordance with DES-210 prior to changing the WP. The WP Revision Request form can be found in Appendix 4.2. The form can be generated by the individual requesting the change, but is normally processed by the planner. The actual cover sheet may be modified to add organizations to review and approve the package based upon the results of the planning process (ASF and JHIT). The WP Revision Request is completed as follows:

The Originator **SHALL**:

- Complete the Originator section
- Enter a description of the requested change(s) on the WP Revision Request or on additional sheets that:
  - Include pages to be added to the WP, if required
  - Provide additional steps with required signatures at the appropriate locations in the body of the WP
  - Indicate reason for change(s)

- Enter name, signature and date, and forward the completed WP Revision Request to the responsible Planner

The Planner **SHALL** verify the information on the WPRR; confirm the change is valid and necessary; and complete the WPRR as appropriate (if disapproved, indicate the reason); and:

- Enter name, signature, and date
- Obtain original WP and prepare a revised WP including new pages and incorporate previous pen and ink changes
- Obtain concurrence and approval signature in accordance with Section 4.3.3, Concurrence and Approval
- Indicate the revisions on every affected page by:
  - Drawing a vertical line in the right hand margin next to the change
  - Entering the revision number
  - Initialing and dating the change
- Retain the cover sheet and all pages replaced in a WP as a result of a revision in the work package history file or with the package in a separate Appendix and marked as *Superseded*
- Log the WP Revision Request in the WP Status Log

4.3.6.3 Pen and Ink, and Page Changes

Use Pen and Ink changes for minor items that do not meet the requirements of a revision. Use of correction fluid or correction tape is not allowed. Changes to information derived from the EDP (i.e., drawings, specifications, instructions, etc.), **SHALL** be changed in the EDP in accordance with DES-210 prior to changing the WP.

*Pen and Ink changes **SHALL** be reviewed and concurred with by the affected organization(s) and documented in the WP status log.*
Pen and Ink changes are made as follows:

- Draw a single line through the entry to be changed
- Make the desired entry into the WP
- Draw a vertical line in the right-hand margin next to the change
- Initial and date the change
- Record change, concurrence, and reason in the WP Status Log for WPs

If the Pen and Ink change requires a page change:

- Replace original pages with revised pages
- Insert additional pages, as required
- Mark removed pages as *SUPERSEDED* and place in miscellaneous field generated appendix

4.3.7 Cancellation

The Responsible Organization **may** cancel approved, in progress WPs in accordance with this section.

Prior to canceling a work package, the Planner **SHALL**:

- Ensure that the cancellation does not adversely affect an existing Plant Action Tracking System item or technical direction
- Ensure that the cancellation does not impact a regulatory requirement, decision, or agreement

- Review the current status of work
- Add additional task steps, through the revision process, to the WP to secure the job site as required
- Cancel material orders as applicable
- Cancel and date the WCF

4.3.8 Closure

The Job Supervisor **SHALL**, within 90 days of completion of work:

- Ensure all required documents are properly filled out and contained in the WP
- Ensure work, inspections, Engineering dispositions or Nonconforming Conditions, and testing required by the WP are completed and indicated in the WP
- If outstanding deficiencies are noted during the WP closure, which are **not** covered in the original scope of the WP, notify the RM for proper disposition
- Complete the Job Supervisor closure section of the WP Cover Sheet
- Issue a new WCF in accordance with Chapter 3 for all new or remaining open deficiencies
- Ensure all work and testing specified in the WP has been completed satisfactorily and documented in the WP as required

If a WP is written to address a Non-Conformance Report, then Engineering **SHALL** perform an operability assessment on components or systems prior to returning to service.

Engineering **SHALL** verify the following are completed and then complete the Engineering closure signature line of the WP Cover Sheet, as applicable:

- A post modification walkdown to redline drawings has been performed
- Redlines have included all administrative clarifications, minor design changes, and Engineering Change Request field changes per the DES-210
- Redlined excerpt controlled drawings have been delivered to Site Design Document Control
- After the above have been performed, complete the Engineering closure signature line on the WP Cover Sheet

NOTE: *Redlines must include all administrative clarifications, minor design changes, and Engineering Change Request field changes per DES-210.*

Quality Assurance **SHALL** ensure that required signatures and documents are included in the WP, requiring Quality Assurance concurrence per Chapter 3, and verify that:

- When required, a PMT is performed and documented
- Acceptance criteria are met
- A non-conformance report has been submitted and dispositioned in accordance with approved procedures to resolve hardware/testing problems, as required
- Verify the completed WP meets the requirements for a quality record, in accordance with *Records Management Guidance for Records Sources*
- Verify that all quality records are complete and reflect the work performed
- Complete the Quality closure signature line of the WP Cover Sheet, as applicable

The RM then reviews the WP to ensure that all required reviews are complete and the required signatures are on the WP Cover Sheet, and approves WP closure by signing the closure section

of the WP Cover Sheet. They **SHALL** then ensure that the WCF is closed in the database and the WCF is signed.

4.4 Type 2 Work Package

4.4.1 Type 2 Work Package Summary:

The Type 2 WP will be the same format as a Type 1 WP and all necessary prerequisites, initial conditions, work instructions, drawings, and post maintenance testing required by the design package incorporated into the Type 2 WP. Type 2 WPs also follow the Type 1 WP process for changes, revisions, and closure (i.e., Sections 4.3.1 through 4.3.8).

4.4.2 Initial Planning & Design Phase

The RM **SHALL** review the scope for the requested work identified on the WCF or project. If the scope is not sufficient, develop a more detailed scope to ensure the planning and design phase will be adequately performed. This is also an essential element of the Site's ISM system, and the foundation for the success of the entire project. Much of the outcome of the design is based on the initial scope given to the Engineer. For construction projects, this is also essential in the bidding process, so every effort should be made to ensure the scope is sufficient and detailed enough to begin this process. An ASF **SHALL** be performed prior to initiating design per DES-210. A JHIT **SHALL** be performed early in the design phase to assist in identifying hazards and allowing engineered safety features to be developed to control the hazards.

An engineering walkdown of the requested activity is performed by engineers, planners, SMEs and crafts (if available). This **may** be completed concurrently with the development of the JHIT/JHA. DES-210 provides instructions for conducting a walkdown for the design. The JHA **SHALL** be completed prior to approval of the WP and may be completed before or after completion of the EDP.

The Planning Team **SHALL** refer to appropriate drawings and other technical data before and during the walkdown and review available lessons learned from previous WPs and from the LL/GI homepage on the Site intranet.

4.4.3 WP Development

A Type 2 WP is essentially a Type 1 WP integrated with the design. The elements such as JHA, work scope definition, precautions and limitations, prerequisites, special tools, work steps, hold points, etc., are developed as described previously. The difference is that the planner works closely with the engineer to include the design elements necessary to perform the work in the WP.

To accomplish this, DES-210 is to be used for developing the engineering design portion of the package. The EDP will contain any detailed work instructions necessary to properly perform the design. These detailed work instructions for the execution of the work will be incorporated into the WP work instructions as described in this Chapter. The engineering specifications may contain the work steps as required to complete the project. It **Should** be decided in the project planning stage if specifications will include specific work steps. As previously indicated, an ASF, JHIT, and JHA **SHALL** be completed as part of the planning process for the work package.

APPENDIX 4.1 - WORK PACKAGE COVER SHEET

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Type 1 ☐ **WORK PACKAGE-COVER SHEET** **Type 2 ☐**

WORK CONTROL NO. _____ REVISION NO. _____ E.O. Number: _____

TITLE: _____

Planner: _____ / _____ / _____
Name Signature Date

CONCURRENCE:

Based on my personal review, I agree that the work described in this package meets technical requirements under my cognizance, can be performed safely and contains all of the required controls from the JHA.

Responsible: Organization _____ / _____ / _____
Name Signature Date

Facility Mgr.: (or designee) _____ / _____ / _____
Name Signature Date

H&S: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

RAD: _____ / _____ / _____
Name Signature Date

Crit Safety: _____ / _____ / _____
Name Signature Date

Nuc Safety: _____ / _____ / _____
Name Signature Date

Environmental: _____ / _____ / _____
Name Signature Date

Fire Protection: _____ / _____ / _____
Name Signature Date

Quality: _____ / _____ / _____
Name Signature Date

ORC/PRC: (Review Only) _____ / _____ / _____
Initials ORC/PRC Meeting No. Date

APPROVAL:

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

CLOSURE CONCURRENCE:

Based upon my personal review of this work package and inspection of the work site, all of the work and retest specified in this package has been satisfactorily completed.

Job Supervisor: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

Quality _____ / _____ / _____
Name Signature Date

CLOSURE APPROVAL:

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

APPENDIX 4.2 - WORK PACKAGE REVISION REQUEST

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
WORK PACKAGE REVISION REQUEST

Page 1 of 2

STANDARD WORK PACKAGE SERIAL NUMBER: _____
WORK CONTROL NO. _____ REVISION NO. _____

TITLE: _____

DESCRIPTION AND REASON FOR REQUESTED CHANGE(S):

Originator: _____ / _____ / _____
Name Signature Date

REQUEST DISPOSITION:

_____ Request Approved _____ Request Disapproved

Reason for Disapproval:

Planner: _____ / _____ / _____
Name Signature Date

CONCURRENCE:

Based on my personal review, I agree that the work described in this package meets technical requirements under my cognizance, can be performed safely and contains all of the required controls from the JHA.

Responsible Organization: _____ / _____ / _____
Name Signature Date

Facility Mgr.: (or designee) _____ / _____ / _____
Name Signature Date

H&S: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

RAD: _____ / _____ / _____
Name Signature Date

Crit Safety: _____ / _____ / _____
Name Signature Date

Nuc Safety: _____ / _____ / _____
Name Signature Date

Environmental: _____ / _____ / _____
Name Signature Date

Fire Protection: _____ / _____ / _____
Name Signature Date

Quality: _____ / _____ / _____
Name Signature Date

ORC/PRC: (Review Only) _____ / _____ / _____
Initials ORC/PRC Meeting No. Date

APPENDIX 4.2 - WORK PACKAGE REVISION REQUEST

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
WORK PACKAGE REVISION REQUEST
Page 2 of 2

WORK CONTROL NO. _____ REVISION NO. _____

APPROVAL:

Responsible Manager (Rep): _____ / _____ / _____
Name Signature Date

SWP USE AUTHORIZATION:

If SWP used for TS&R work, signature indicates that specific limitations and boundaries on repair activities have been clearly identified. Use of this SWP is authorized for the work specified by the WCF contained herein. Work must be started within 90 calendar days.

Responsible Manager (Rep): _____ / _____ / _____
Name Signature Date

CLOSURE CONCURRENCE:

Based upon my personal review of this work package and inspection of the work site, all of the work and retest specified in this package has been satisfactorily completed.

Job Supervisor: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

Quality _____ / _____ / _____
Name Signature Date

CLOSURE APPROVAL:

Responsible Manager (Rep): _____ / _____ / _____
Name Signature Date

CHAPTER 5 – STANDARD WORK PACKAGE PROCESS

5.1 PURPOSE

The purpose of this chapter is to provide the requirements for the development and/or performance of the SWP.

5.2 SCOPE

The SWPs **may** be used for those work activities that are repetitive in nature. The SWPs should not be used as a mechanism to circumvent the IWCP process, but should be used for specific repetitive work activities, that is, SWPs should not be developed to trouble shoot and repair (TS&R) all electrical within a facility because the hazards, safety and compliance controls, and work conditions are different throughout the facility, but may be used for a specific electrical system. SWPs for TS&R are intended to identify and correct unknown deficiencies and repair them, if the deficiency is known, a Type 1 or 2 WP **SHALL** be used. SWPs **may** be developed to perform repetitive maintenance actions on systems or components in all buildings on the Site that meet the scope of the SWP and to perform projects that cover more than one operations area/company. If a SWP is used, then a JHIT/JHA specific to the scope of work **SHALL** be conducted in accordance with Chapter 3, prior to performing the work defined by the SWP. If additional safety and compliance controls are identified that were not included in the SWP, then the SWP **SHALL** be modified in accordance with Section 4.3.6.

Prior to developing a new SWP, the RM **SHALL** review the scope of existing SWPs to determine if an existing SWP is adequate to perform the requested work identified on the WCF.

The RM **SHALL** keep the original SWP after approval. Working copies of the SWP **SHALL** be used for performance of the work.

The Planner, Responsible Organization, engineers, floor level workers, user, and assigned SMEs perform a walkdown of the requested activity. This **Should** be completed concurrently with the completion of the JHIT and development of the JHA and IHA (as required). The walkdown **Should** include inspection of the structures, systems, components and work environment related to the proposed work activity. The level of participation should be graded to the complexity, hazards level, and uncertainty of the task

The walkdown **Should** be performed by personnel familiar with the area and equipment, SMEs, craftsmen, equipment operators and any other supporting organizations.

The Planning Team **SHALL** refer to appropriate drawings and other technical data before and during the walkdown and review available lessons learned from previous WCDs.

A SWP **SHALL** be developed according to the instructions and format in Chapter 4 for developing a Type 1 WP, except for closure of the WCF after SWP development. Additionally, the instructions for revisions, pen and ink changes, reviews, cancellation, and closure are the same as for a Type 1 WP, described in Chapter 4. The following specific instructions apply to the development of SWPs.

5.3 Instructions for SWP usage

The Planner **SHALL**:

- Identify specific limitations and boundaries of work allowed under the SWP
- Perform a JHIT/JHA to the specific boundaries of work under the SWP

The Responsible Manager **SHALL**:

- Ensure WCF is completed for SWP usage
- Ensure SWP clearly identifies specific limitations on activities and boundaries and safety controls from the JHA prior to approving and issuing an SWP

5.3.1 Instructions for Preparing a SWP for TS&R

These specific instructions apply to the development of SWPs to be used for TS&R activities:

The Planner **SHALL**:

- Perform a JHIT/JHA to the specific boundaries of repair under the TS&R SWP
- Identify anticipated hazards and associated safety and compliance controls
- Identify potential permit requirements (e.g., confined space , energized electrical)
- Identify specific limitations and boundaries of repair work allowed under the TS&R SWP

The Responsible Manager **SHALL**:

- Ensure WCF is completed for SWP usage
- Ensure SWP clearly identifies specific limitations on repair activities and boundaries and safety controls from the JHA prior to approving and issuing a TS&R SWP
- Ensure that this activity will not result in a temporary or permanent modification.

5.3.2 Instructions for Completing SWP Cover Sheet

NOTE: *The format of the serial number is SWP-NN-XXXXX-XX where NN is the appropriate company number, building number, or RFETS for site-approved SWPs; XXXXX is a sequential number; and XX is the revision number.*

The actual cover sheet (Appendix 5.1) for the package may be modified to add organizations to review and approve the package based upon the results of the planning process.

The Planner **SHALL**:

- Obtain the next sequential number, and record on the Cover Sheet.
- Develop the SWP Cover Sheet by entering the following information:
  - Work Control Number from the applicable WCF
  - WP Title
  - Revision Number
  - Planner's Name
  - Include additional concurrence requirements, as required

Concurrence and approval signatures are obtained in accordance with Section 4.3.3. If after the JHIT/JHA is conducted prior to releasing the SWP for work, additional concurrence signatures are required from the JHIT, then the Planner/Job Supervisor **SHALL** obtain the additional concurrence signatures prior to conducting the work. Closure signatures are obtained in accordance with Section 4.3.8, Closure.

APPENDIX 5.1 - STANDARD WORK PACKAGE COVER SHEET

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE STANDARD WORK PACKAGE COVER SHEET

STANDARD WORK PACKAGE SERIAL NUMBER: ____

WORK CONTROL NO. _____ REVISION NO. _____

TITLE: _____

Planner: _____ / _____ / _____
Name Signature Date

CONCURRENCE:

Based on my personal review, I agree that the work described in this package meets technical requirements under my cognizance, can be performed safely and contains all of the required controls from the JHA.

Responsible: Organization _____ / _____ / _____
Name Signature Date

H&S: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

RAD: _____ / _____ / _____
Name Signature Date

Crit Safety: _____ / _____ / _____
Name Signature Date

Nuc Safety: _____ / _____ / _____
Name Signature Date

Environmental: _____ / _____ / _____
Name Signature Date

Fire Protection: _____ / _____ / _____
Name Signature Date

Quality: _____ / _____ / _____
Name Signature Date

ORC/PRC: (Review Only) _____ / _____ / _____
Initials ORC/PRC Meeting No. Date

APPROVAL:

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

SWP USE AUTHORIZATION:

If SWP used for TS&R work, signature indicates that specific limitations and boundaries on repair activities have been clearly identified. Use of this Standard Work Package (SWP) is authorized for the work specified by the Work Control Form contained herein. Work must be started within 90 calendar days.

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

CLOSURE CONCURRENCE:

Based upon my personal review of this work package and inspection of the work site, all of the work and retest specified in this package has been satisfactorily completed.

Job Supervisor: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

Quality _____ / _____ / _____
Name Signature Date

CLOSURE APPROVAL:

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

CHAPTER 6 – WORK PLANS & PROCEDURES

6.1 PURPOSE

The purpose of this chapter is to provide the requirements for the development and/or performance of the WP&P.

6.2 SCOPE

Although the development and use of WP&Ps is not new to this Site, the integration within the IWCP process is new to most of these processes described. The reason for this integration is to ensure that the IWCP encompasses ALL work accomplished onsite. Table 6-1 below describes the WP&Ps that are governed by this chapter. Also provided in Table 6-1 are the additional governing documents that **SHALL** be followed as applicable for the process and WP&P described. The WP&Ps described in Table 6-1 **may** be used as stand-alone documents for their respective process, and do not need to be included and controlled additionally in another WP.

Table 6-1

PROCESS	WP&P	ADDITIONAL GOVERNING DOCUMENT
Routine, recurrent technical operations	Technical Procedures	MAN-001-SDRM, PRO-815-DM-01, INS-816-DM-02
Temporary technical operations	Technical Operations Orders	MAN-066-COOP
CERCLA Investigations	Work Plans, Sampling and Analysis Plans, Health and Safety Plans, Reconnaissance Level Characterization Plans, Final Survey Plans, Project Execution Plans, Quality Assurance Program/Project Plans, Remedial Investigations, Feasibility Studies	CERCLA guidance (EPA/540/G-89/004, OSWER Directive 9355.3-01), RFCA IGD, Decommissioning Program Plan, Facility Disposition Program Manual, DOE Order 414.1A, 10CFR 830.120
CERCLA Actions	Field Implementation Plans, Health and Safety Plans, Sampling and Analysis Plans, Proposed Action Memorandum, Quality Assurance Program/Project Plans, Interim Measure/Interim Remedial Action, RFCA Standard Operating Protocols	CERCLA guidance (EPA/540/G-89/004, OSWER Directive 9355.3-01), RFCA IGD, Decommissioning Program Plan, DOE Order 414.1A, 10CFR 830.120
RCRA Actions	Closure Description Document, Site Hazard Assessment Plans, Final Survey Plan, RCRA Facility Investigation, Corrective Measure Study	RCRA, DOE Order 414.1A, 10CFR 830.120, RCRA Part B Operating Permit
Emergency Preparedness Drills and Exercises	Drill Package, Exercise Package	EPLAN-97; 1-A35-5500-12.01, 4-A36-5500-12.02, RCRA Part B Permit
Security Force Operations	Performance Test & Exercise Plans	1-0102M, WSLLC Performance Test Manual

6.3 INSTRUCTIONS

6.3.1 Initial Work Plan & Procedure Development Phase

The RM and WP&P Developer review the scope for the requested work identified on the WCF. If the scope is not sufficient, develop a more detailed and concise scope to ensure the WP&P development will be adequately performed. It is essential to ensure the scope is adequate to conduct the development phase of the WP&P. This is also an essential element of the Site's ISM system, and the foundation for the success of the entire project.

NOTE: *Every effort should be made to ensure the crafts and/or operators performing the work are active participants in the walkdown and development process.*

The Planning Team performs a walkdown of the requested activity. This should be completed concurrently with the development of the JHIT/JHA in Chapter 3.

Walkdowns **Should** be completed in a team environment and include:

- Personnel familiar with the area and equipment
- SMEs for the applicable environmental, safety, or management programs
- Craftsmen and equipment operators
- Any other supporting organizations

The Planning Team **SHALL** refer to appropriate drawings and other technical data before and during the walkdown and review available lessons learned from previous WP&Ps and from the LL/GI homepage on the Site intranet.

A JHIT/JHA **SHALL** be performed in accordance with Chapter 3 and retained in the WP&P history file. The location of the history file is determined by the Responsible Manager in accordance with the appropriate additional governing document listed in table 6.1.

6.3.2 WP&P Development

The WP&P Developer develops the WP&P using the format described in the additional governing document described in Table 6-1. All of the safety and compliance controls identified in the JHA **SHALL** be incorporated into the appropriate section of the WP&P (precautions, limitations, work steps, etc.).

If the work will affect the design, function or method of performing the function of a safety system, structure or component or TSR/OSR described in the safety analysis or other information relied on as the AB, then the RM determines the specific required action and references the applicable AB Document or DOE approved required actions.

If the required actions are not specified in the AB Document and have not been approved, they must be documented and reviewed by Nuclear Safety and the Operational Review Committee (ORC)/Independent Review Committee.

The WP&P Developer then develops job instructions, based on skill-of-the-craft, identified hazards, and task complexity. Specific radiological control, nuclear safety, criticality safety, health and safety, compliance requirements, hold points, surveillance requirements, post maintenance testing requirements, and return to service requirement as identified by the respective disciplines are incorporated into the WCD. Refer to the *Writing Instruction Guide* for guidance.

6.3.3 Concurrence and Approval

Concurrence and approval **SHALL** be performed in accordance with the following:

- Signatures **SHALL** be obtained from representatives of the organizations designated on the ASF and the organizations required by the JHIT
- The requirements from the "Additional Governing Document" outlined in Table 6-1 for the given process and WP&P **SHALL** be followed

Concurrence/Approval Signatures indicate satisfaction by the signing organization that the WP&P contains sufficient analysis, documentation, and actions to satisfy the criteria of the graded approach concept with respect to the scope of the work.

If an SES or USQD is required, then submit the WP&P for screening and place the SES/USQD in the WP&P history file.

Screen the WP&P in accordance with *Operations Review Requirements*.

When all requirements for approval of the WP&P are met, the RM signs and dates the WP&P.

6.3.4 Conduct of Work

Prior to commencing work, the RM **SHALL** screen the activity using the ASF in accordance with Chapter 2 each time the WP&P is used. (It is anticipated that all 3 questions in Screen 1 of the ASF will be answered Yes for routinely performed plans or procedures, thereby requiring no further documentation.) Use requirements for Technical Procedures are governed by the SDRM. For all other WP&Ps, the WP&P document **SHALL** be kept at the work site, unless there is a documented reason not to, such as contamination, confined space, environmental factors, etc. If the WP&P is not at the work site, and there are steps requiring; a) sign-off/validation, b) they must be performed in order, or c) they must be performed exactly as written, then the workers must be in communication with someone who can read the work instructions to them. Working copies of the work instructions **may** also be used.

NOTE: *The organization(s) performing the WP&P will comply with the requirements of the COOP Manual for conduct of work and procedural compliance.*

Upon completion of the WP&P, the Job Supervisor **SHALL** perform a PJR in accordance with the requirements stated in Chapter 10.

6.3.5 Revisions and Changes

For those changes where the scope, design intent, or hazard controls have changed, a new ASF **SHALL** be performed in accordance with Chapter 2, and a new JHIT and JHA **SHALL** be performed in accordance with Chapter 3.

The revision and change process **SHALL** be in accordance with the requirements identified in the "Additional Governing Document" column in Table 6-1.

6.3.6 Closure

The closure process **SHALL** be in accordance with the requirements identified in the "Additional Governing Document" column in Table 6-1.

The RM **SHALL** close the WCF and retain WCF in WP&P history file. This **may** be performed once the WP&P has been approved.

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CHAPTER 7 - PREVENTIVE MAINTENANCE

7.1 PURPOSE

This chapter describes the requirements for the development of Preventive Maintenance Work Package (PMWP) and the performance of Preventive Maintenance Orders.

7.2 DISCUSSION

This process ensures the elements of the Site's ISM system are followed. This process relies heavily on the skill-of-the-craft, but should in no way compromise the safety of the worker or public, or protection of the environment.

7.3 INSTRUCTIONS

7.3.1 Development of PMWPs

The Planner, Responsible Organization, engineers, floor level workers, user, and assigned SMEs perform a walkdown of the requested activity. This **Should** be completed concurrently with the completion of the JHIT and development of the JHA and IHA (as required). The walkdown **Should** include inspection of the structures, systems, components and work environment related to the proposed work activity. The level of participation should be graded to the complexity, hazards level, and uncertainty of the task. Hazard controls identified in the JHA **SHALL** be incorporated into an appropriate section (precautions, limitations, work steps, etc.) of the PMWP.

The walkdown **Should** be performed by personnel familiar with the area and equipment, SMEs, craftsmen, equipment operators and any other supporting organizations.

The Planning Team **SHALL** refer to appropriate drawings and other technical data before and during the walkdown and review available lessons learned from the LL/GI homepage on the Site intranet.

The Planner completes a PMWP Cover Sheet and develops the PMWP. The actual cover sheet may be modified to add organizations to review and approve the package based upon the results of the planning process.

7.3.2 PMWP Formatting Instructions

Planner

- Enter the PMWP CONTROL #, Page # and REV# in header of all PMWP pages. The PMWP control number can be obtained from the PM Coordinator
- Define the scope
- Enter applicable Vendor Manuals
- Enter the Craft and estimated scheduled hours (based on craft input) for each Craft
- List parts or special equipment that is needed to support performance of the PMWP. **IF** a BOM is needed, then refer to Section 4.3.2.6
- Develop Precautions and Limitations that apply to the PMWP as follows:
  - Inform the performer of specific requirements and PPE for the requested work and hazardous conditions and its potential effects in the precautions and limitations section

  - Precautions alert document performers to required actions and conditions that represent potential hazards to personnel of possible damage to equipment, or that establish abnormal conditions. Limitations define boundaries that are **NOT** to be exceeded
- Develop Prerequisites that apply to the PMWP. Consider the following in preparing prerequisites:
  - The safety of personnel, the general public, and the environment
  - The protection of equipment and material
  - Inadvertent, incorrect or omitted actions that could cause system operation, shutdown or could result in an OSR/TSR violation
  - Limitations identified in approved vendor information and design documents
  - Unusual alarms that could occur or are expected to occur as a result of the performance of work
  - Actions that could result in automatic shutdown of any engineered safety features
  - The reduction of personnel or environmental exposure to radiation, contamination, electrical shocks, dangerous chemicals, fire hazards, confined spaces, and moving or rotating equipment
  - Specific training or qualification requirements specific to the WP
  - Performance of a pre-evolution brief or Job Task Briefing as required by the COOP Manual
  - Review of the applicable MSDS sheets
  - BOM/MAORF inventory and material verification
  - Any preparatory field activities that are required to be completed before proceeding with the specific task instructions
  - Verifying the operability of systems or components before removal from service, for safety items addressed in AB Documents
  - Confirming the correct system lineup
  - Enter applicable remedial actions
- Develop task steps that provide:
  - Clearly understood text
  - Appropriate level of detail
  - Concise instruction steps in a logical sequence using skill-of-craft methodology, as required.
  - Coordination of multiple actions
  - Implementation of the safety and compliance controls
- Develop specific task steps required to complete the requested work with input from (as appropriate):
  - Maintenance
  - Engineering
  - Safety SMEs
  - Quality
  - Metrology Laboratory
  - Other organizations required by the WP
- Develop task steps, based on skill-of-the-craft, identified hazards, safety and compliance controls, and task complexity, and include:
  - Specific interim and final witness, inspection, or verification points, as identified by Engineering, Safety, or Quality

NOTE: *Check-off spaces **Should** be used instead of signatures for all work steps that do not require witness, inspection, verification points, or data collection.*

  - Signatures are required for steps needing inspection, verification, such as witness points and verification of activities, or data collection

- Identification of steps that could initiate an equipment shutdown or transient or the initiation or interruption of any process action
- Identification of steps that inform the operations personnel of expected alarms or equipment operations
- Specific radiological control hold points, as identified by Radiological Safety
- Signature by SM or work authorizing authority authorizing activities which are cited or credited in AB documents
- Refer to the *Writing Instruction Guide* for guidance in writing action steps

Post Maintenance Test & Data Disposition

Engineering, RM, Maintenance, Planner
Develop PMT requirements, and provide the following:

- Purpose describing the intent of the PMT
- Precautions and limitations specific to the PMT
- Prerequisites specific to the PMT
- PMT task instructions specific to the PMT
- PMT acceptance criteria and verification

Planner

- Develop a step for the RM to compare the work accomplished with the PMT or inspection performed to determine that all work is acceptable prior to returning the equipment or system to normal service per COOP, if required
- Attach the PMWP Cover Sheet and obtain Concurrence and Approval Signatures

7.3.3 Concurrence and Approval

The Planner and RM sign and date the PMWP Cover Sheet.

If a change, other than administrative or editorial, is made after concurrence signatures are obtained, then the RM **SHALL** delete all previous concurrence signatures and obtain concurrence signatures again.

The planner then obtains comments and concerns from representatives of the applicable organizations. After resolution, the planner then obtains signatures from representatives of the organizations designated as "Required" in the JHIT performed in Chapter 3 on the PMWP Cover Sheet.

If a nuclear safety review is required, then the RM submits the PMWP for screening and places the SES in an appendix of the PMWP before issuing for work. Screen the PMWP in accordance with *Operations Review Requirements*.

When all requirements for approval are met, the RM signs and dates the Cover Sheet, identifies the start date and frequency and returns the approved PMWP to the PM Coordinator.

The PM Coordinator forwards a completed Preventive Maintenance Change Request (PMCR) to the Equipment Maintenance/Preventive Maintenance (EM/PM) Administrator with the following information:

- PMWP control number, or revision number and date
- PMWP frequency
- First execution date

- Equipment description
- Lead craft and specific number of required craft(s) or support personnel

The PM Coordinator then forwards the PMWP to the Planner who forwards it and associated developmental materials to Document Control. These documents will be stored in two files.

- Working file contains a copy of the original PMWP
- History file contains the original PMWP, developmental references, SES/ORC/PRC documentation (if applicable), comment resolution sheets, initial ASF/JHA, as applicable etc.

Document Control then processes the PMWP and the EM/PM Administrator updates the Maintenance Management System database, as necessary.

7.3.4 PMWP Execution

The PM Coordinator **SHALL** print Preventive Maintenance Order reports and obtain working copies of PMWP from Document Control and forward PMOs and PMWPs to the applicable department for execution.

If the work will affect the design, function or method of performing the function of a safety system, structure or component or TSR/OSR described in the safety analysis or other information relied on as the AB, then the RM **SHALL** determine the specific remedial action and reference the applicable AB Document or DOE approved remedial actions. If the required actions are not specified in the AB Document and have not been approved, they must be documented and reviewed by Nuclear Safety and ORC/Independent Review Committee.

Prior to commencing work, the RM **SHALL** screen the activity using the ASF in accordance with Chapter 2 each time the PMWP is used. (It is anticipated that all 3 questions in Screen 1 of the ASF will be answered Yes for routinely performed activities, thereby requiring no further documentation.)

The Job Supervisor performs a walkdown and a JHIT/JHA in accordance with the following:

1) If the PMWP meets the criteria of Minor Maintenance, as defined in Chapter 2, and has a periodicity less than "Annually", then perform the hazard analysis in accordance with Chapter 8, Minor Maintenance. Chapter 8, Appendix 8.2 provides a Minor Maintenance Hazards Analysis Matrix with the corresponding work activity description listed in Appendix 8.1 to aid supervisors and workers in identifying the applicable hazards and controls. If the PMWP activity is not listed in Appendix 8.1, then a JHIT and JHA **SHALL** be performed in accordance with Chapter 3.
2) If the PMWP does not meet the criteria of Minor Maintenance, as defined in Chapter 2, but has a periodicity less than "Annually", then a JHA **SHALL** be performed in accordance with Chapter 3. However, this JHA **may** be used for future PMWPs provided that the conditions haven't changed.
3) If the PMWP has a periodicity of "Annual" or greater, then a JHIT and JHA **SHALL** be performed in accordance with Chapter 3 each time the PMWP is performed.

The Job Supervisor conducts a Pre-Evolution Briefing or a Job Task Briefing as required by the COOP Manual and executes the PMWP. The JHA **SHALL** be reviewed during the pre-evolution brief.

NOTE: *The maintenance organizations performing the PMWP **SHALL** comply with the requirements of the COOP Manual for conduct of work and procedural compliance.*

The Job Supervisor performs the close-out review of PMWP and forwards the completed PMWP and Preventive Maintenance Order to PM Coordinator for Preventive Maintenance Order close-out.

As applicable, the Job Supervisor initiates a WCF to correct discrepancies outside the scope of the PMWP.

The PM Coordinator then closes out Preventive Maintenance Order in the Maintenance Management System database as applicable, files the PMWP and Preventive Maintenance Order and initiates a PMCR, if needed.

7.3.5 Revisions and Changes

7.3.5.1 Revision and Change Determination

NOTE: *Forwarding a PMCR to planning will ensure that the master PMWP is updated to reflect the required change.*

For those changes where the scope, design intent, or hazard controls have changed, a new ASF **SHALL** be performed in accordance with Chapter 2, and a new JHIT and JHA **SHALL** be performed in accordance with Chapter 3.

The Initiator **SHALL** process a PMCR in accordance with Section 7.3.5.4, if the requested change affects any of the following:

- The scope or intent of the job
- Hardware important to criticality safety, the intent of the SES/USQD, or an AB Document or OSR/TSR
- A hazard control measure identified on the JHA or the PMWP (e.g., ALARA review, RWP)
- System/component model number, material specification (that does not meet original fit, form or function as determined by Engineering), material certification or test data, or system component configuration
- Hold points, inspections, verifications and witness signoffs

Otherwise process per Section 7.3.5.2. below.

7.3.5.2 Pen and Ink, and Page Changes

Use Pen and Ink changes for items that do not meet the requirements of a revision. Pen and Ink changes must have the concurrence of the organization the change affects.

NOTE: *Use of correction fluid or correction tape is not allowed.*

Make pen and ink changes to working copy with an indelible ink pen as follows:

- Draw a single line through the entry to be changed
- Make the desired entry into the PMWP
- Draw a vertical line in the left-hand margin next to the change, initial and date the change, and annotate PMCR number
- Complete PMWP
- Initiate PMCR in accordance with Section 7.3.5.4 to update the PMWP in document control

7.3.5.3 PMCRs for Maintenance Management System Database Changes

These changes include; scheduling , frequency, craft changes, cancellations and deferrals, The Initiator **SHALL** complete PMCR per Section 7.3.5.4.

7.3.5.4 Instructions for Completing PMCR

The Initiator completes Blocks 1 and 2 and enters the reason for the request in Block 3.

Enter the justification for the change in Block 4 and sign. Be as specific as possible (refer to definitions for PM cancellations and PM deferrals).

Submit the PMCR to the RM for disposition.

NOTE: *RM accepts responsibility for all consequences resulting from PMCRs approved by their designees.*

RM
Approve or disapprove the PMCR by checking the appropriate box in Block 5. If the request is disapproved, state reason for disapproval in the space provided.

Enter the WBS/Charge Number in the space provided.

Submit the PMCR to PM Coordinator for disposition.

PM Coordinator
Process PMCR as follows:

- Assign a PMCR Number and annotate it in Block 6
- Forward PMCR to planning or EM/PM Administrator as applicable

Planner
Changes to PMWP as follows:

- Obtain the original PMWP from Document Control
- Revise the PMWP as required, and route for concurrence and approval per Section 7.3.3
- **IF** pen and ink change, **THEN** make changes to original (change bars, PMCR#, initial and date in left margin.) Annotate PMCR# as Pen & Ink with date on PMWP cover sheet
- Transmit the completed PMCR and original pages that were replaced to Document Control to be placed in the PMWP history file
- Send copy of PMCR to PM Coordinator for filing

EM/PM Administrator
Changes to Maintenance Management System database (only) as follows:

- Assign PMCR #
- Update Maintenance Management System Database
- Complete Block 6 of PMCR
- Forward copy of original to initiator and retain original in file

APPENDIX 7.1 - PREVENTIVE MAINTENANCE WORK PACKAGE COVER SHEET

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
PREVENTIVE MAINTENANCE WORK PACKAGE (PMWP) COVER SHEET

Page 1 of 1

PMWP CONTROL NO. _____ REVISION NO. _____

TITLE: _____

Planner: _____ / _____ / _____
Name Signature Date

CONCURRENCE:

Based on my personal review, I agree that the work described in this package meets technical requirements under my cognizance, can be performed safely and contains all of the required controls from the JHA.

Responsible: Organization _____ / _____ / _____
Name Signature Date

H&S: _____ / _____ / _____
Name Signature Date

Engineering: _____ / _____ / _____
Name Signature Date

RAD: _____ / _____ / _____
Name Signature Date

Crit Safety: _____ / _____ / _____
Name Signature Date

Nuc Safety: _____ / _____ / _____
Name Signature Date

Environmental: _____ / _____ / _____
Name Signature Date

Fire Protection: _____ / _____ / _____
Name Signature Date

Quality: _____ / _____ / _____
Name Signature Date

ORC/PRC: (Review Only) _____ / _____ / _____
Initials ORC/PRC Meeting No. Date

APPROVAL:

Responsible: Manager (Rep) _____ / _____ / _____
Name Signature Date

PMWP Start Date: _____ PMWP Frequency: _____
(i.e., Annual, Quarterly, Monthly)

APPENDIX 7.2 - PREVENTIVE MAINTENANCE WORK PACKAGE FORMAT

PMWP CONT._____ Page X of X REV___

SCOPE
Applicable Vendor Manuals:
Craft /Hrs:
Parts/Special Equipment Required:
Instructions: **Precaution & Limitations:** **Prerequisites (including remedial actions):** **Task Steps:** **PMT & Data Disposition**

APPENDIX 7.3 - PREVENTIVE MAINTENANCE CHANGE REQUEST

PREVENTIVE MAINTENANCE CHANGE REQUEST (PMCR)

1. Description:
PM Control No._____ Current PM Rev.:_____
EM/PM No.:_____
PM Work Order:_____

2. EM/PM Information:
Equipment Name:_____ Manufacturer:_____
Description: _____
Serial # _____ Model # _____
Old EM/PM #_____ Priority Code _____
Property # _____
Ops Area _____ Bldg. _____ Floor _____ Room _____ Col._____

3. Reason for Request:

_____
_____
_____
_____

4. Justification for Change:

_____
_____
_____

Requested by: _____ / _____ / _____
Print Name/Ext./Bldg. No. Signature Date

5. Request: Approved Disapproved: WBS/Charge No.:__(Required)

Reasons if disapproved:

_____
_____
_____

Responsible Supervisor:_____ / _____ / _____
Print Name/Ext./Page Signature Date

6. Disposition By:
PMCR No._____ Pen/Ink _____Revision ____Other _____Copy to Originator __

_____
_____
_____
_____

Disposition By: _____ / _____ / _____
Print Name/Ext./Page Signature Date

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CHAPTER 8 - MINOR MAINTENANCE

8.1 PURPOSE

This chapter provides the requirements for the conduct of minor maintenance.

8.2 DISCUSSION

Minor maintenance is an accepted approach to performing maintenance, which is defined as minor and routine in nature, in a more efficient manner without compromising safety. Minor maintenance activities will still require the ISM approach, but in a graded and tailored manner. This chapter describes the process to determine and perform minor maintenance activities. Minor maintenance applies to steelworkers and non-bargaining unit trades.

8.3 INSTRUCTIONS

8.3.1 Minor Maintenance Determination

The Minor Maintenance Work Activity Description, Appendix 8.1, provides a categorization of typical Minor Maintenance activities. The trend codes listed in Appendix 8.1 correspond to the Minor Maintenance Hazard Analysis Matrix in Appendix 8.2, which aids the worker/supervisor in evaluating the job hazards. If the Minor Maintenance activity is not listed in Appendix 8.1, then a JHIT and JHA **SHALL** be performed in accordance with Chapter 3. The RM **SHALL** ensure that this activity will not result in a temporary or permanent modification. The RM **SHALL** also ensure that the system, structure or component will be restored to compliance with its functional criteria.

All Site work involves inherent safety hazards which must be individually evaluated and engineering and administrative controls/barriers placed to protect the workers from identified hazards. Crafts' manager/supervisor and the craft personnel who will execute work must jointly agree work is safe to carry out using the Minor Maintenance Hazard Analysis Matrix (Appendix 8.2) or JHA performed per Chapter 3, and associated permits. Any work determined by H&S to require a work plan to control hazards (i.e., asbestos, lead, beryllium, etc.) **SHALL** be performed as a work package, not minor maintenance.

8.3.2 Minor Maintenance Tracking

Minor Maintenance is tracked using the following elements, as appropriate:

- Each minor maintenance sub-category, as determined by the Responsible Manager, will be assigned a Work Control Number and will be entered into the WCF database.
- The RM determines what is defined as a minor maintenance sub-category in their facility, for tracking purposes. An example might be to issue a minor maintenance Work Control Number for each type of craft.

If a tracking system is established to properly control the minor maintenance, organizations **may** establish one WCF for each type of repetitive minor maintenance. Multiple minor maintenance activities may be conducted against an open WCF. The organization **SHALL** conduct and close individual work activities using the Minor Maintenance Documentation Report (Appendix 8.3).

8.3.3 Work Instructions

All Minor Maintenance activities will require an adequate assessment of hazards and controls. Appendix 8.2 provides a Hazard Identification Matrix with the corresponding work activity description listed in Appendix 8.1 to aid in identifying the hazards and applicable controls.

Procurement of materials and replacement parts for minor maintenance **SHALL** be performed in accordance with Chapter 4.

Prior to commencing work, the RM **SHALL** screen the activity using the ASF in accordance with Chapter 2. (It is anticipated that all 3 questions in Screen 1 of the ASF will be answered Yes, thereby requiring no further documentation.)

The Maintenance Manager **SHALL** review training requirements for those hazards identified in Appendix 8.2 that indicate a training requirement. The Training Users Manual can be referenced for regulatory training requirements. Job specific skills and craft competencies **Should** also be assessed for assigned workers.

A Job Task Briefing or Pre-Evolutionary Brief **SHALL** be performed discussing job hazards and associated controls with the workers, as defined in COOP, prior to releasing the minor maintenance activity to work.

Upon completion of the minor maintenance activity, a PJR may be required in accordance with the requirements stated in Chapter 10.

For those activities generating waste (i.e., lamps, oils, etc.) a waste management plan **Should** be in place to ensure regulatory compliance.

8.4 Minor Maintenance Documentation Report

Appendix 8.3 contains the Sample Minor Maintenance Documentation Report required for all Minor Maintenance activities. The RM **SHALL** enter the WCF number, Bldg. and Job Description in the space provided.

Prerequisites Section

The Job Supervisor **SHALL**:

- Check YES or NO in the appropriate check boxes for permits used and number
- Record any additional comments
- Notify user prior to starting work. Annotate in the box provided completion of Job Task Briefing. Obtain approval from RM before releasing work to crafts

Work Performance Section

Crafts **SHALL** record all work completed in the space provided. Use and attach additional sheets, if required, to record completed work.

PMT Performance/Operational Check Section

The Job Supervisor **SHALL** determine the PMT required and record the PMT results. This field is required for all Minor Maintenance Activities, even if a verification of work was all that was performed. Job Supervisor **SHALL** review and sign for satisfactory completion of PMT.

APPENDIX 8.1 - MINOR MAINTENANCE WORK ACTIVITY DESCRIPTION

The table below provides the category of activity descriptions for those activities that could be performed via Minor Maintenance as defined in Chapter 2. These activities **may** be performed in radiological areas using Radiological Work Permits, as required. Refer to the following Minor Maintenance Hazard Analysis Matrix (Appendix 8.2) for assistance in identifying hazards, impacts, and controls, as related to the "Trend Codes".

TREND CODE	ACTIVITY DESCRIPTION
R01	Re-lamping - Replacement of lamps; panel board enunciator lamps (as long as panel doesn't have to be taken out of service); visual inspection, cleaning, and re-lamping of panel board indicators.
R02	Facility Rework - Rework/replacement of doors, windows, walls, ceiling/floor covering, steps, locks, office partitions, etc. (Pre-survey for asbestos/lead in materials & coatings.)
R03	Painting - General upkeep painting of equipment, offices and buildings. Painting of crosswalks and other similar markings.
R04	Restroom Rework - Rework/replacement of all restroom fixtures or plumbing (or unplug/clean out of drains), excluding backflow preventors
R05	Potable Water Filter Maintenance – Rework/replacement of filter assemblies and periodic replacement of filter cartridges (e.g., on drinking fountains, eye wash stations).
R06	Freeze Protection Inspection/Rework - Perform inspections to verify operation, TS&R of hardwired heat trace and portable heaters.
R07	TS&R Non-safety class HVAC – Inspection, cleaning, troubleshooting and minor rework (must be equivalent item material) of HVAC units. Replacement of NON-HEPA air filters and inspections.
R08	Barricades, Placards, Signs and Labels - Inspections, fabrication and placement of barricades, placards, signs and labels.
R09	Instrument Tags - Fabricate and install instrument, valve, or instrument valve tags. (No breach of system.)
R10	Troubleshooting & Rework (TS&R) of System/Equipment Problems - Troubleshooting and Rework of system/equipment problems to determine cause of malfunction and performing rework necessary to return system/equipment to service. TS&R of energized circuits **SHALL** follow the requirements of OS&IH PM, Chapter 36, *Electrical Safety Program and Chapter 9, LO/TO.*
R11	Control Panels (Mechanical & Electrical) - Replace missing panel covers, screws, or handles on mechanical/electrical control panels.
R12	Equipment Lube Levels - Verification of equipment lubrication reservoir levels and addition of lubricant as required.
R13	Equipment Inspection/Adjustments – Visual inspection, cleaning, packing adjustment, thermographic checks, vibration checks, etc.
R14	Security Gate/Fence Maintenance – Inspection, Cleaning, adjustment, and minor rework of security gate operating equipment and barrier arms. (Must be equivalent item material; if digging is required, use excavation permit/soil disturbance).
R15	Scaffold Assemble/Disassemble – Installation and removal of scaffolding. Includes storage relocation activities.
R16	Engineering Investigation Support – Support for engineering investigations limited to equipment access and taking of measurements or determine as-built condition, not requiring interruption of operations or disassembly of equipment. No equipment configuration changes or adjustments.
R17	Operations Support - Support for initial inspections, walkdowns, pre-approved operating procedure activities, as-built activity, verifying the operation/function/calibration of instruments or equipment, rigging activities.
R18	Electrical Circuits - Replacement of light switch or receptacles, ballasts, TS&R of $\leq$ 480v equipment.
R19	Minor Mechanical Rework - Rework of non-chemical, non contaminated piping systems where a permitted LO/TO is required. Rework of grating, handrails, and ironwork.
R20	Swamp Coolers - Inspection, cleaning, TS&R, and adjustment of swamp coolers (must be equivalent item material).
R21	Shop Fabrication - Fabricate/rework of equipment/systems in shop. Fabrications are permitted for non-safety class equipment and systems.
R22	Replacement of fan belts on non credited SC 3 and 4 systems.
R23	Plant Power Troubleshooting & Rework (TS&R) of System/Equipment Problems - Troubleshooting and Rework of system/equipment problems to determine cause of malfunction and performing rework necessary to return system/equipment to service. TS&R of energized circuits **SHALL** follow the requirements of *OS&IH PM, CHAPTER 37 MAINTENANCE LINE DISTRIBUTION WORK .*

APPENDIX 8.2 - MINOR MAINTENANCE HAZARDS ANALYSIS MATRIX

	HAZARDS	P	T	M	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	CONTROL MEASURES
1	Radiation / Contamination Work Area	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	Read and follow Radiological Work Permit.
2	Electrical Hazards		X		X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	Only qualified individuals **SHALL** perform work. Follow OS&IH PM, Ch. 36 or Ch. 37.
3	Energized Electrical Hazards	X	X		X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	Install LO/TO per the OS&IH PM Ch. 9. Follow OS&IH PM, Ch. 36. Obtain Operations Manager approval for work on energized electrical equipment.
4	Energized Component/System (Mechanical, Hydraulic or Chemical)	X			X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	Install LO/TO per the OS&IH PM Ch. 9.
5	PCB Ballasts				X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	If building does not have a Waste Generating Instruction, contact Environmental for guidance. Dispose of per building Waste Stream & Residue Identification & Characterization. If ballast is leaking contact IH for guidance.
6	Confined Space Entry	X		X										X														Contact H&S. Follow Confined Space Entry Checklist & PPE.
7	Cutting/Welding/Hot Work	X	X	X					X			X	X	X				X	X	X	X		X	X	X			Contact H&S & FD. Follow Hot Work Checklist & PPE
8	Flammable/Combustible Materials					X	X			X		X		X		X				X	X		X		X			Ensure proper fire protection controls are established. Use appropriate PPE. Review and retain copies of the MSDSs.
9	Fall Hazards Present		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	Use approved ladder, scaffolding, lift, or fall protection equipment. OS&IH PM, Ch. 39, 40, and 42
10	Roof Work		X			X	X			X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	Obtain permission from Shift Manager. Stay on walkways. Stay at least 6 ft from edge of roof.
11	Ladders				X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Do not go above second step from the top on step ladders. Maintain a 3 to 4 ratio for extension ladders, and extend them three feet above the landing. Always face ladder when climbing up or down. Do not lean out of ladder frame.
12	Scaffolding		X			X	X			X	X	X	X	X			X	X	X	X	X	X	X			X	X	Do not lean over railing. Only qualified individuals **SHALL** erect scaffolding. OS&IH PM, Ch. 40.
13	Pressure Hazards		X						X		X			X		X	X			X	X		X		X			Follow OS&IH PM, Ch. 15. LO/TO per the effective procedure
14	Asbestos Exposure		X			X		X				X		X					X	X	X	X	X	X				Read and follow approved asbestos procedures. OS&IH PM, Ch. 19. Formal planning is required if asbestos abatement is required.
15	Hazardous Materials					X	X		X			X	X	X		X	X	X		X	X	X	X	X	X			Contact H&S for monitoring and control requirements. Read and understand MSDS. Know location of nearest spill kit.
16	Hazardous Waste Operations		X									X		X							X							Use PPE specified by H&S. Dispose of waste per Bldg. Waste Stream & Residue Identification & Characterization and Non-routine Waste Origination Log. OS&IH PM Ch. 22.
17	Beryllium Hazards		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	Mandatory to involve H&S in planning process if activities are performed in areas that may contain Beryllium contamination and expose workers to inhalation hazards.
18	Lead Exposure		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X		X		X			Mandatory to involve H&S in planning process if activities are performed in areas that may expose workers to inorganic lead.

P= Items that require a permit / checklist / form. | **T** = Items where formal training may be required. | **M** = Medical Monitoring may be required.

APPENDIX 8.2 - MINOR MAINTENANCE HAZARDS ANALYSIS MATRIX

	HAZARDS	P	T	M	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	CONTROL MEASURES
19	Respiratory Hazards		X	X		X	X	X	X			X	X	X			X		X	X	X	X	X	X	X	X	X	Use PPE as specified by H&S & Radiological Engineering/Operations. Ventilate area. HSP 7.03.
20	Aerial Lifts					X	X			X	X	X	X	X			X	X		X	X	X	X	X		X	X	Know and understand operation of lift. OS&IH PM, Ch. 41
21	Heavy Equipment		X									X		X							X		X				X	Know and understand operation of equipment.
22	Hoisting & Rigging Operations		X	X								X		X							X		X				X	Only qualified individuals to perform work. OS&IH PM Ch. 12. Critical Lifts require formal planning and cannot be performed as minor maintenance.
23	Process Waste/Steam Systems													X			X			X	X	X						Look and listen for signs of leaks. LO/TO if required.
24	Temperature Extremes				X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	During hot weather, be aware of the signs of heat stress or exhaustion. Drink plenty of fluids. During cold weather, dress appropriately and watch for signs of hypothermia. Contact H&S if heat/cold stress monitoring needed.
25	Noise				X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	Wear hearing protection if in high noise area. OS&IH PM Ch. 33.
26	Poor Lighting				X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	Use flashlight or temporary lighting, as needed.
27	Vehicle Traffic					X	X					X		X				X	X		X							Be aware of surroundings. Use Flag-Person if necessary.
28	Dust				X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	Contact H&S for an exposure assessment and identification of required controls. Contact Environmental for fugitive emissions.
29	Wet/Slippery Surfaces					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Caution employees to be sure of footing. If possible, dry area prior to working.
30	Animals/Insects				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Be cautious and look for snakes, rodents, spiders, and flying insects. Inform employees of possible problems.
31	Adjacent Water Hazard				X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X			Use Ground Fault Circuit Interrupter receptacles.
32	Uneven Terrain				X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X			X	Caution employees to watch for areas which could cause sprains and strains. Be sure of footing. Wear substantial foot protection.
33	Pinch Points					X	X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Look for and avoid pinch points. Use caution when tipping or moving heavy objects. Wear leather gloves.
34	Falling Objects				X	X	X	X				X		X			X		X	X	X	X	X			X	X	Be aware of possible falling objects. If required, wear hard-hat.
35	Sharp Objects				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Cut away from body. Protect sharp object/edges when not in use. Use knives with caution. Wear leather gloves.
36	Overhead Obstructions				X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	Be aware of possible obstructions. If required, wear hard-hat. OS&IH PM, Ch. 34
37	Site Control (Signs/Barricades)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			Obey all posted signs and barricades. Establish boundary if necessary. OS&IH PM, Ch. 8
38	Remote Work Area				X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	Maintain 2-way radio communication.
39	Housekeeping				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Housekeeping **SHALL** be maintained as work progresses.
40	Environmental Impact/Requirements				X	X	X		X			X				X						X					Contact Environmental for guidance.

P= Items that require a permit / checklist / form. | **T** = Items where formal training may be required. | **M** = Medical Monitoring may be required.

APPENDIX 8.3 - MINOR MAINTENANCE DOCUMENTATION REPORT

WCF Number: _____ Bldg.: _____ Charge #: _____
Job Description (See WCF): _____

Prerequisites (Check all that apply, attach ***any*** permits or indicate permit number per governing document)

	YES	NO	Permit No. / Comments
Confined Space	☐	☐	_____
LO/TO Required	☐	☐	_____
Radiological Work Permit Required	☐	☐	_____
Beryllium Operations Area	☐	☐	_____
Hotwork	☐	☐	_____
Live Electrical	☐	☐	_____
Elevated Work	☐	☐	_____

Additional Comments/Prerequisites and/or Special Tools/Equipment: _____

Job Task Briefing Performed ☐ Pre-Ev Briefing Performed ☐ (Check which one performed)
(Attach Completed Form)
User Notified: ☐ _____ (Name of Person Notified)

Work Authorized by Responsible Manager (or Designee) to perform work:

RM: _____ / _____ / _____
(or Designee) Name Signature Date

Work Performance:
Record Work Performed: _____

PMT Requirements/Operational Check:

☐ Operational Check Performed Satisfactory
- OR -
☐ PMT Performed (record PMT performed and results): _____

Feedback: (Attach Post Job Review Checklist, if needed)

Completion Review: Craft Hours: _____
Job Supv.: _____ / _____ / _____
Name Signature Date

CHAPTER 9 - EMERGENCY WORK

9.1 PURPOSE

This chapter describes the requirements for initiating, documenting, and performing Emergency Work. Emergency Work is defined as any work that requires immediate action to prevent serious personal injury, harm to the environment, a breach to security, or a serious loss of property. Emergency Work Processes are not a substitute for emergency response such as fire fighting, but can support emergency response once the emergency is under control and the area stabilized.

9.2 DISCUSSION

From time to time it is necessary to take emergency actions to prevent injury to personnel and equipment, and to protect the public and environment. This does not mean that Priority Level 1 type work should be performed to meet a schedule or mission activity, but for those items that require immediate attention as defined as Priority Level 1 activities. The five functions of the Site's ISM system should be followed when conducting all work to prevent or mitigate any further injury to personnel or the environment. This chapter will provide the instructions for documenting and performing emergency work. It is the line manager's responsibility to ensure this work is performed safely.

9.3 INSTRUCTIONS

9.3.1 Emergency Work Determination

Any person **may** contact the appropriate SM or RM if an emergency situation exists.

The SM, or RM for non-nuclear facilities, **SHALL** determine if the situation requires Emergency Work. If a determination is made that Emergency Work is warranted, then initiate Emergency Work actions per Appendix 9.1.

A WCF is not required prior to initiating Emergency Work.

The RM or SM **SHALL** inform the Shift Superintendent, Engineering, Quality Assurance, and all appropriate safety disciplines, as required, of the initiation of Emergency Work.

The RM **SHALL** categorize and report Emergency Work to the DOE in accordance with *Occurrence Reporting Process*.

9.3.2 Performance & Documentation

The performance of the emergency work **SHALL** be in accordance with the fundamentals of the Site's ISM system. If time permits, a JHIT and JHA **Should** be performed in accordance with Chapter 3, prior to performing any work.

Document all work performed on the Emergency Action Work Log (EAWL), Appendix 9.1.

An environmental checklist is not required for these activities. However, documentation of activities **Should** be provided to Environmental for subsequent evaluation.

Any emergency work governed by initiation of the RCRA Contingency Plan must be reported to Environmental.

9.3.3 Closure

The Job Supervisor **SHALL**:

- Initiate WCF and obtain work control number
- Ensure work, inspections, engineering dispositions or nonconforming conditions, and testing required by the EAWL are completed and indicated in the WP
- Notify the RM for proper disposition if outstanding deficiencies are noted during the EAWL closure, which are **not** covered in the original scope of the EAWL
- Ensure all required documents are properly filled out and contained in the EAWL
- Complete the Job Supervisor closure section on the EAWL
- Issue a new WCF in accordance with Chapter 2, for all open deficiencies
- Ensure all work and testing specified in the EAWL has been completed satisfactorily and documented in the WP as required

If a Non-Conformance Report applies to the EAWL/WCF, then Engineering **SHALL** perform an operability assessment on components or systems prior to returning to service; verify the following are completed and complete the Engineering closure signature line as applicable:

- Perform a post modification walkdown to redline drawings
- Redlines must include all administrative clarifications, minor design changes, and Engineering Change Request field changes per DES-210
- Deliver redlined interim controlled drawings to Site Design Document Control
- Complete the Engineering closure signature line, as applicable

Quality **SHALL**:

- Ensure that required signatures and documents are included in the EAWL
- Verify that a PMT is performed and documented, acceptance criteria is met, and an Non-Conformance Report has been submitted and dispositioned to resolve hardware/testing problems
- Verify the completed EAWL meets the requirements for a quality record, in accordance with *Records Management Guidance for Record Sources*

The RM **SHALL** ensure that Quality signs the closure signature line of the EAWL.

The RM **SHALL** review the EAWL to ensure that all required reviews are complete including all required signatures. This also includes the performance of a SES/USQD.

The RM then approves the EAWL closure and signs the closure section of the EAWL. The activity is then closed in the WCF database.

APPENDIX 9.1 - EMERGENCY ACTION WORK LOG & INSTRUCTIONS

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
EMERGENCY ACTION WORK LOG COVER SHEET

Page____of_____

WORK CONTROL NO._____

TITLE:_____

ATTENDANCE AT EMERGENCY LOCATION:

Based on my signature, I agree that I will be present at the scene of the emergency to provide guidance for resolving the emergency situation safely and that I will provide necessary inspection, witness, or verification points as required to indicate all work was performed in accordance with current standards.

Responsible Organization:	Name	Signature	Date
H&S:	Name	Signature	Date
Engineering:	Name	Signature	Date
RAD:	Name	Signature	Date
Crit Safety:	Name	Signature	Date
Nuc Safety:	Name	Signature	Date
Environmental:	Name	Signature	Date
Fire Protection:	Name	Signature	Date
Quality:	Name	Signature	Date

APPROVAL:

Approved to Work as an Emergency Priority:

Responsible Manager (Rep)	Name	Signature	Date

CLOSURE CONCURRENCE:

Based upon my personal review of this work package and inspection of the work site, all of the work and retest is listed in this package and has been satisfactorily completed and there are not any additional testing or maintenance actions required to restore the affected system to service.

Job Supervisor:	Name	Signature	Date
Engineering:	Name	Signature	Date
Quality	Name	Signature	Date
ORC (Review Only)	Initials	ORC Meeting Number	Date

CLOSURE APPROVAL:

Responsible Manager (Rep)	Name	Signature	Date

APPENDIX 9.1 - EMERGENCY ACTION WORK LOG & INSTRUCTIONS

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Responsible Management (RM)

1.a) Determine whether or not Emergency Work is warranted, if so, record the scope of the Emergency Work below:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

RM (Designee): _____ / _____ / _____
Name Signature Date

b) Obtain authorization to perform emergency work on or near energized electrical equipment per Appendix 1 of OS&IH PM, CHAPTER 36, as required.

_____
Name Signature Date

c) Delegate a supervisor to control the Emergency Work actions (i.e., EAWL Coordinator) and oversee maintaining the Emergency Action Work Log (EAWL).

Name: _____ Title: _____

RM (Designee): _____ / _____ / _____
Name Signature Date

RM, EAWL Coordinator

d) Indicate below the personnel, including vendors, required to be present during the Emergency Work:

Name: _____ Title: _____
Name: _____ Title: _____
Name: _____ Title: _____
Name: _____ Title: _____
Name: _____ Title: _____

RM/EAWL Coord.: _____ / _____ / _____
Name Signature Date

APPENDIX 9.1 - EMERGENCY ACTION WORK LOG & INSTRUCTIONS

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EAWL Coordinator

2) Document notifications.

	Name of Person Contacted	Time & Date Contacted
Shift Superintendent		/
Engineering		/
Quality Coordinator		/
Foreman (If Required)		/
FI (If Required)		/
IH & S (If Required)		/
RAD (If Required)		/
Environmental (If Required)		/

EAWL Coordinator

3) Document personnel attending pre-evolution brief below or on pre-evolution brief form per COOP.

Responsible Organization, EAWL Recorder, Engineering

4) Document all emergency actions and repairs, including the locations, times and persons performing the actions. Include sufficient detail to allow this information to stand alone as a work document. This should include items such as conformance to plant and industry standards, reference documents, information about all parts and materials, special equipment, calibration data, etc.

NOTE
USE CHECKLISTS (HOTWORK, WIRE REMOVAL, VALVE/BREAKER LINEUP, ETC) AND PERMITS (RADIOLOGICAL WORK PERMIT, SOIL DISTURBANCE, ETC) WHEN APPROPRIATE.

Actions taken: _____

APPENDIX 9.1 - EMERGENCY ACTION WORK LOG & INSTRUCTIONS

Page ______ of _____.

Responsible Organization, EAWL Recorder, Engineering

5) Record all material/parts below for the Emergency Work.

> **NOTE**
> **ENGINEERING MUST REVIEW AND CONCUR WITH THE USE OF ALL PARTS AND MATERIALS FOR THOSE ACTIVITIES THAT ARE SITED OR CREDITED IN AUTHORIZATION BASIS DOCUMENTS**

Item # ______ Name ________________________________
Size ____________________ Material ____________________
Mfg. Part # ____________________ Model # ____________________
Catalog # ____________________ Heat # ____________________
Lot # ______________ P/O # __________ Qty _______ Unit ____________
Vendor Info: ________________________________

Item # ______ Name ________________________________
Size ____________________ Material ____________________
Mfg. Part # ____________________ Model # ____________________
Catalog # ____________________ Heat # ____________________
Lot # ______________ P/O # __________ Qty _______ Unit ____________
Vendor Info: ________________________________

Item # ______ Name ________________________________
Size ____________________ Material ____________________
Mfg. Part # ____________________ Model # ____________________
Catalog # ____________________ Heat # ____________________
Lot # ______________ P/O # __________ Qty _______ Unit ____________
Vendor Info: ________________________________

Item # ______ Name ________________________________
Size ____________________ Material ____________________
Mfg. Part # ____________________ Model # ____________________
Catalog # ____________________ Heat # ____________________
Lot # ______________ P/O # __________ Qty _______ Unit ____________
Vendor Info: ________________________________

Engineer: ____________________ / ____________________ / ____________
Name Signature Date

APPENDIX 9.1 - EMERGENCY ACTION WORK LOG & INSTRUCTIONS

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Engineering

6) Record below all PMT conducted, along with time and craft performing PMT.

_____
_____
_____
_____
_____

Engineer: _____ / _____ / _____
Name Signature Date

7) Record below the additional corrective maintenance or PMT beyond the mitigating action of the Emergency Work corrective action.

_____
_____
_____
_____
_____

Engineer: _____ / _____ / _____
Name Signature Date

EAWL Coordinator

8) If applicable, complete the System Return-to-Service and Operability Checklist per COOP.

9) Additional corrective actions required to complete maintenance/repair covered under the EAWL. REQUIRED / NOT REQUIRED (Circle One)

EAWL Coord.: _____ / _____ / _____
Name Signature Date

Step #	Description

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CHAPTER 10 - POST JOB REVIEWS & FEEDBACK

10.1 PURPOSE

The purpose of this chapter is to provide the requirements for performing feedback by the use of:

- Post Job Reviews (PJRs)
- Corrective Action Plan Input

10.2 DISCUSSION

A significant amount of very useful informal feedback is being provided at all levels throughout the work planning and execution process that fosters safer, more effective work conducted at the Site. This chapter provides an avenue whereby personnel can provide formalized input to help identify strengths and weaknesses in order to improve the processes. Identification and elimination of performance weaknesses through effective PJRs lead to an upward spiral in performance that increases overall safety and health of workers and the public, protection of the environment, while also improving efficiency and mission performance. The feedback obtained from these PJRs is not concerned with right or wrong, but with gaining information to improve the processes under discussion.

Lessons Learned are a good practice or innovative approach that is captured and shared to promote repeat application, or an adverse work practice or experience that is captured and shared to avoid recurrence. To determine if Lessons Learned should be shared, ask if there is the potential for this deficiency, event, adverse condition or safety issue to exist in, or to affect other buildings, operations, activities or organizations. If the answer is "yes", the lessons **Should** be shared.

10.3 INSTRUCTIONS

10.3.1 Criteria for Conducting PJRs:

The PJR checklist **SHALL** be available to allow the worker to provide feedback at any given opportunity. The following is a list of criteria that applies to all types of work for which the Work Team **SHALL** complete the PJR Checklist, which is found in Appendix 10.1:

- ASF Screen, score in the "MEDIUM" or "HIGH" category
- When new/special technology or techniques were used
- If the job tasks resulted in a recordable, or other significant incident, such as regulatory noncompliance or environmental damage/harm
- If a worker was injured during the performance of work
- Work defined as Emergency Work in accordance with Chapter 3
- When requested by anyone involved in the performance of work

The Job Supervisor **SHALL** conduct the PJR for the planning and performance of the work if the above criteria are met. This should be performed with the work team when practical and submitted to the RM.

The RM **SHALL** review the PJR Checklist and evaluate if any lessons-learned or areas for improvement were identified. If lessons-learned, recurring issues or areas for improvement were identified, then the RM **SHALL** submit this information to the responsible organization's

Lessons Learned Point of Contact for inclusion into the lessons learned program in accordance with the *Site Lessons Learned Generic Implications Requirements Manual.*

If the comments identified during the PJR can be corrected immediately, then the RM **SHALL** ensure the comments are corrected in a timely manner and provide feedback back to the work team.

10.4 Instructions for completing the Post Job Review Checklist.

1. Enter the work document number and the date the form was completed.

2. Enter the name of the Job Supervisor who was responsible for the performance of the work. (This person **SHALL** lead the PJR.)

3. Evaluate how well the activity went. Check the appropriate box, and provide comments to clarify needs identified during the work or to suggest improvements. In addition to mentioning areas for improvement, when the process is excellent it can be beneficial to say why it went so well. This positive feedback may increase the likelihood that the performance will be repeated.

Additional Information to clarify the evaluation
The following provides some narrative descriptions for some key questions on the PJR checklist.

1. ***Safety Barriers Were Effective (Item 1)*** is intended to capture issues and suggestions related to the adequacy of the safety during the work. The review **Should** consider the adequacy of the safety hazard identification, special safety equipment, safety coordination and support, pre-job briefing, and worker performance during the job.

2. ***System, Component, and Support Were Ready for Work (Item 6)*** is intended to evaluate the physical conditions needed to perform the work. It considers whether the equipment and system being worked on were in a condition where work could be performed as scheduled. This evaluation includes the coordination between planning, operations, maintenance and support organizations to ensure proper configuration and condition of work site equipment.

3. ***Support Coverage Was Adequate (Item 10)*** is intended to evaluate the coordination and cooperation between support organizations and the worker(s) performing the work. It includes having key people available when needed and having cooperation between work groups to accomplish the work.

   Unacceptable - Significant delays encountered, key people not available, major conflict between work groups
   Marginal - Minor delays encountered, coordination break downs, some conflict between work groups
   Good - No delays encountered, good coordination or cooperation, but not both
   Excellent - Support ready to work as planned, good coordination and cooperation between work groups

4. ***Environmental Barriers Were Effective (Item 11)*** is intended to capture issues and suggestions related to the adequacy of the environmental controls during the work. The review **Should** consider the adequacy of the environmental hazard identification, special equipment, coordination and support, pre-job briefing, and worker performance.

5. ***Work Document Was Adequate (Item 12)*** is intended to capture issues and suggestions related to the adequacy of the work document. These include evaluating that the work

instructions were appropriate and comprehensive, that instructions were clear, drawings and references were appropriate and comprehensive, tools equipment and processes used to accomplish the work were appropriate, and identifies any contributing factors that helped improve the job performance.

6 ***Other (Description) (Item 14)*** This section is provided to allow individuals to identify improvement opportunities that do not seem to fit in the other sections. It should also be used to indicate when an occurrence report has been generated as a result of an incident that occurred during performance of the work. Provide additional information in the comment section of the checklist.

7. The ***Comment Section*** should be used to:
   - Provide clarifying information about the PJR
   - Provide specific suggestions to improve work performance in the future

Some example comments are provided below for the related number on the checklist:

1 The lifting straps issued for the work were found to be damaged during the pre-job preparation. The damaged straps were returned to the tool room for disposal. Good straps were drawn from stock. We need to ensure that straps are inspected prior to being issued by the tool room.

9 The Radiation Safety coverage was not available for the first two hours of the scheduled work. They were called over to support an unplanned shipment of casks. We need to follow the plan of the day or let people know when conditions change. We could have completed another work order while we waited if we had known this was going to happen.

11 This work document was well prepared. The preparer walked the job down with the team prior to preparing the document. During the walkdown we considered several alternatives and determined that by removing some grating we could save more than 5 hours in the pump replacement. This worked great!

8. ***Lessons Learned*** This section is provided to allow individuals to submit the lessons learned from the project to the Lessons Learned program. A background of the project should be given, followed by the lessons learned during the project. Refer to the Site Lessons Learned Generic Implications Requirements Manual.

10.5 CORRECTIVE ACTION PROGRAM

The Corrective Action Program, as defined in *Site Corrective Action Requirements Manual*, establishes the elements and requirements for tracking and correcting deficiencies. As part of the feedback process, the RM **Should** catalog any deficiencies or issues identified through the PJR and/or job closeout process that should be entered and tracked through the Corrective Action Program. This ensures that new deficiencies are documented and managed through subsequent closure.

APPENDIX 10.1 - POST JOB REVIEW CHECKLIST

Work Document Number: _____ Building: _____ Date: _____
Title: _____
Job Supervisor: _____ Equipment Name: _____

	Not Applicable	Unacceptable	Marginal	Good	Excellent
1. Safety Barriers Were Effective					
2. PPE Appropriate					
3. Hazard Analysis/Mitigation adequate					
4. Safety Coordination and Support					
5. Pre-job Briefing/Job Task Briefing					
6. System or Component Were Ready for Work					
7. Plant operating status appropriate					
8. System/component operating status appropriate					
9. Training identified was complete and appropriate					
10. Support Coverage Was Adequate					
• Environmental					
• Safety, Health					
• Radiation Safety					
• Operations					
• Engineering					
• Maintenance					
• Planning/Scheduling					
11. Environmental Barriers Were Effective					
• Hazard analysis/mitigation adequately addressed					
12. Work Document Was Adequate					
• Work instruction appropriate					
• Work instructions comprehensive					
• Contributing factors that helped job performance					
• Tools, equipment, and or process					
13. Regulatory requirements identified/complied with					
14. Other: _____					

CHAPTER 11 – REFERENCES

11.1 REFERENCES

Acquisition Procedure for Requisitioning Commodities and Services, 1-W36-APR-111
ALARA Job and Design Reviews, PRO-227-RSP-08.02
Chemical Management Manual, 1-MAN-019-CMM-001
Chemical Management Plan
Conduct of Operations Manual, MAN-066-COOP
Davis-Bacon Process, 1-W25-ADM-9.05
Decommissioning Project Plan
Department of Energy Acquisition Regulations
Department of Energy Directives

- DOE C 420.1, *Contractors Requirement Document for Facility Safety*
- DOE 430.1A, *Life Cycle Asset Management Program*
- DOE Order 151.1, *Comprehensive Emergency Management*
- DOE Order 420.1, *Facility Safety*
- DOE Order 414.1A, *Quality Assurance*
- DOE Order 4330.4B, *Maintenance Management Program*
- DOE Order 5400.5, *Radiation Protection of the Public and the Environment*
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- DOE Order 5480.21, *Unreviewed Safety Questions*
- DOE Order 5480.22, *Technical Safety Requirements*
- DOE Order 5480.23, *Nuclear Safety Analysis Reports*
- DOE Order 5631.2C, *Personnel Security Program*
- DOE Order 5632.1C, *Protection and Control of Safeguards and Security Interests*
- DOE P 450.4, *Safety Management System Policy*
- DOE-EM-STD -5502-94, *DOE Limited Standard Hazard Baseline Documentation*
- DOE-STD-3009-94, *DOE Standard Guide for USDOE Non Nuclear Facility SARs*
- DOE-STD-1027-92, *Hazard Categorization & Accident Analysis Techniques for Compliance with DOE Nuclear Safety Analysis Reports*
- DOE-STD-1090-99, *Hoisting and Rigging*
- DOE-STD-3011-94, *DOE Standard Guidance for Preparation of DOE 5480.22 (TSRs)*

Developing, Maintaining, and Controlling Document, PRO-815-DM-01
Environmental Approval Process for Construction/Excavation Activities, 1-F20-ER-EMR-EM.001
Health and Safety Practices Manual, PADC-1992-00635

- 1-W13-HSP-31.10, *Hot Work*
- PRO-W89-HSP-31.11, *Transfer and Storage of Plutonium for Fire Safety*
- 1-PRO-184-HSP-32.09, *Exits (Means of Egress)*
- 1-X92-HSP-34.10, *Fire Dampers*
- PRO-I83-HSP-18.05, *Administration, Inspection, and Control of Radiation Generating Devices*

Implementation of NEPA Documentation, 1-25000-EPR-NEPA.001
Inspection of Tanks or Piping Systems Pressure Vessels and Safety/Relief Devices, SM-137
Integrated Environmental Management Manual

Integrated Safety Management System Manual, 1-MAN-016-ISM
Integrated Tank Management Plan
K-H Senior Management Policy
Management of Waste Info Prior to Transmittal to the Waste Records Center, 1-PRO-077-WIPP-005
Master Agreement Subcontract Procurement, 1-PRO-453
Non-Routine Waste Origination Log Instructions, 1-I34-WO1103-NRWOL
Non-Weapons Procured Item Acceptance & Certification, 4-J44-RC&I-6600
Nuclear Criticality Safety Manual
Nuclear Materials Safeguards Manual, 1-MAN-010-NMS
Nuclear Safety Manual, 1-MAN-018-NSM
Occupation Safety and Industrial Hygiene Practices Manual, MAN-072-OS&IH PM

- Chapter 9, *Lockout/Tagout*
- Chapter 11, *Powered Industrial Trucks*
- Chapter 12, *Hoisting and Rigging*
- Chapter 15, *Pressure Systems*
- Chapter 16, *Heat and Cold Stress Prevention*
- Chapter 19, *Asbestos Management Program*
- Chapter 20, *Lead Exposure Program*
- Chapter 21, *Confined Space Entry Program*
- Chapter 22, *Hazard Communication Program*
- Chapter 26, *Ergonomics*
- Chapter 28, *Chronic Beryllium Disease Prevention Program*
- Chapter 29, *Eye & Face Protection*
- Chapter 31, *Respiratory Protection Practices*
- Chapter 32, *Emergency Shower and Eyewash Protection*
- Chapter 33, *Hearing Conservation Program*
- Chapter 34, *Head Protection*
- Chapter 36, *Electrical Safety Program*
- Chapter 37, *Maintenance Line Distribution Work*
- Chapter 38, *Batteries*
- Chapter 39, *Ladder Safety*
- Chapter 40, *Scaffolds*
- Chapter 41, *Work Platforms*
- Chapter 42, *Fall Protection and Equipment*
- Chapter 45, *Excavation and Trenching*
- Chapter 48, *Explosives Safety*
- Chapter 49, *Welding, Cutting and Brazing*
- Chapter 50, *Material Storage, Handling and Towing*

Occurrence Reporting Process, 1-D97-ADM-16.01
Offsite Waste Management Program, 1-MAN-037-OWMN
Offsite Waste Management Facility Approval Procedure
Operations Review Requirements, 1-52000-ADM-02.01
PCB Management Plan
Procurement Quality Assurance Requirements, PRO-572-PQR-001
Readiness Determination Manual, MAN-040-RDM
Records Management Guidance for Records Sources, 1-V41-RM-001

Resource Conservation and Recovery Act Part B Operating Permit
RFETS Emergency Plan, EPLAN-97
Rocky Flats Cleanup Agreement
Rocky Flats Dictionary
Safeguards & Accountability Manual, 1-MAN-010-S&A
Sanitary Waste Offsite Disposal Procedure, 1-PRO-573-SWODP
Sanitary Waste Procedure, 1-I15-SAN-001
Scheduling and Conducting Building Emergency Drills, 1-A35-5500-12.01
Scheduling and Conducting Site Emergency Response Drills and Exercises, 4-A36-5500-12.02
Site Corrective Action Requirements Manual, 1-MAN-012-SCARM
Site Document Requirements Manual, MAN-001-SDRM
Site Engineering Process Procedure, 1-W51-COEM-DES-210
Site Engineering Requirements Manual, MAN-027-SERM
Site Lessons Learned Generic Implications Requirements Manual, 1-MAN-017-LLGI-RM
Site Quality Assurance Manual
Site Radiological Control Manual, RADCON MANUAL
Standing Order 23, *Operation of Steam and Condensate Systems*
State and Federal Regulations

- 10 CFR 830.3, *Nuclear Safety Management*
- 10 CFR 830.120, *Quality Assurance Requirements*
- 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*
- 10 CFR 835, *Occupational Radiation Protection*
- 7-CCR-1101-14,
- 40 CFR 261,
- 7-CCR-1007.3 Part 261,
- ANSI/AWWA C651-86, *Disinfecting Water Mains*
- CO Reg. #8 Part B, *Asbestos*
- U.S. Department of Labor, *Job Hazard Analysis, OSHA 3071, 1988*
- CERCLA Guidance (EPA/540/G-89/004, OSWER Directive 9355.3-01)
- RFCA IGD
- Resource Conservation and Recovery Act, 6 CCR 1007.3 Parts 260-269
- Federal Facilities Compliance Act
- Toxic Substances Control Act, 40 CFR 761
- National Environmental Policy Act, 40 CFR 1500-1508 and 10 CFR 1021

Tank II Database
Training Implementation Matrix
Training Users Manual, MAN-094-TUM
USQD-RFP-99.1446-FEP
Writing Instruction Guide, INS-816-DM-02
WSLLC Performance Testing Manual, 1-0102M